The NATIONAL BANKING REVIEW

VOLUME 3 NO. 1 SEPTEMBER 1965

HUMANITIES LIBR.

CALIFORNIA INSTITUTE OF TECHNOLOGY
SEP 12 1966

THE ADMINISTRATOR OF NATIONAL BANKS
UNITED STATES TREASURY

A JOURNAL OF POLICY AND PRACTICE

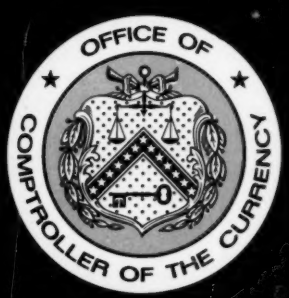
Articles on

- The Banking Competition Controversy
- Underwriting of Municipal Revenue Bonds
- Alternative Means of Debenture Financing
- Financial Regulation and Capital Markets
- Monetary Policy and Debt Management
- The Burden of International Adjustment
- The Gold and Dollar Crisis
- Key Currency Burdens
- The Cost of Being World Banker
- Legal and Regulatory Developments
- Selected Statistical Data
- Book Reviews

The NATIONAL BANKING REVIEW

A JOURNAL OF POLICY AND PRACTICE

Volume 3 SEPTEMBER 1965 Number 1



THE ADMINISTRATOR OF NATIONAL BANKS
UNITED STATES TREASURY, WASHINGTON, D.C.
QUARTERLY PUBLICATION

The NATIONAL BANKING REVIEW

A JOURNAL OF POLICY AND PRACTICE

Volume 3 SEPTEMBER 1965 Number 1

Edited by the Senior Staff of the Department of Banking and Economic Research, Office of the Comptroller of the Currency.

VICTOR ABRAMSON, *Editor*

Associate Editors

DEANE CARSON
FRANKLIN R. EDWARDS
PAUL M. HORVITZ
DAVID MEISELMAN
DAVID C. MOTTER
STANLEY SILVERBERG

CHLOE W. AARON, *Assistant to the Editor*
JOYCE DE TERRA, *Assistant to the Editor*

OSWALD H. BROWNLEE *Visiting Scholar*
ROSS F. ROBERTSON *Visiting Scholar*
IRA O. SCOTT *Visiting Scholar*

Legal articles edited in the Law Department, Office of the Comptroller of the Currency

ROBERT BLOOM, *Chief Counsel*
ROMAN J. GERBER, *Associate Chief Counsel*
CHARLES H. MCENERNEY, JR., *Associate Chief Counsel*

W. ROBERT GRUBB, *Information Officer*

Articles appearing in The National Banking Review *reflect the author's views, and do not bear the endorsement of the Comptroller of the Currency. Manuscripts are judged solely on traditional standards of scholarship.*

JAMES J. SAXON
Comptroller of the Currency

Published September, December, March, and June. Subscription rate: $4.00 per year. Checks should be made payable to the Comptroller of the Currency. Subscriptions should be addressed to: Editor, *The National Banking Review*, Office of the Comptroller of the Currency, United States Treasury Department, Washington, D. C. 20220.

Manuscripts should be addressed to: Editor, *The National Banking Review*, Office of the Comptroller of the Currency, United States Treasury Department, Washington, D. C. 20220. A style sheet will be submitted on request to the Editor.

CONTENTS

		Page
The Banking Competition Controversy	Franklin R. Edwards	1
Should Commercial Banks Be Allowed to Underwrite Municipal Revenue Bonds?	Richard R. West	35
Bank Debenture Financing: A Comparison of Alternatives	Stanley Silverberg	45
Financial Regulation and the Allocative Efficiency of our Capital Markets	David I. Fand	55
Monetary Policy and Debt Management Revisited	John J. Arena	65
The Proper Division of the Burden of International Adjustment	Robert A. Mundell	81
The Gold and Dollar Crisis Five Years Later	Herbert G. Grubel	89
Key Currency Burdens: The U. K. Case	Alan P. Kirman and Wilson E. Schmidt	101
How Much Has Being World Banker Cost?	John H. Kareken	103
Current Legal and Regulatory Developments	Roman J. Gerber	107
Selected Statistical Data		125
Book Reviews		139

Book Reviews

		Page
The Federal Reserve and the American Dollar, by James L. Knipe	*Roland I. Robinson*	139
The Random Character of Stock Market Prices, Paul Cootner (Ed.)	*Lester G. Telser*	140
Regulation Q: Issues and Alternatives, by Lawrence S. Ritter	*Albert H. Cox, Jr.*	143
Time Deposit Growth and the Employment of Bank Funds, by George R. Morrison and Richard T. Selden	*Lyle E. Gramley*	144
Monetary Equilibrium and Economic Development, by Xenophon Zolotas	*Hyman P. Minsky*	146
Economic Growth and External Debt, by Dragoslav Avramovic, et. al.	*Wilson E. Schmidt*	148
Commercial Paper, by Charles M. Weber	*William O. Morris*	150

ON THE COVER — A steel engraving of the first Bank of the United States, created by Congress in 1791.

"An expedient essential to our safety and success."
Alexander Hamilton

Courtesy, Historical Society of Pennsylvania

►FRANKLIN R. EDWARDS

The Banking Competition Controversy

I. *Introduction*

Economists have come to markedly different conclusions about competition in banking. Some have found that the structure of banking markets has no clear relationship to bank performance; others have found that it does. Still others, believe structure to be unimportant.[1]

In dispute is the basic policy issue of the kind of banking structure which best

Franklin R. Edwards is a Senior Economist, Department of Banking and Economic Research, Office of the Comptroller of the Currency.
The author wishes to acknowledge the help of a number of people in gathering and processing data; in particular, William Dimond and Abby Gilbert shouldered most of this burden. I am grateful to the Federal Reserve Board for making available data for both state member and insured nonmember banks. The author alone is responsible for all errors and omissions.

[1] Deane Carson and Paul H. Cootner, "The Structure of Competition in Commercial Banking in The United States," *Private Financial Institutions*, Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

Paul M. Horvitz, *Concentration and Competition in New England Banking*, Ph.D. dissertation, Massachusetts Institute of Technology, 1958.

Federal Reserve Board, "Relations Between Market Structure and Performance for Small Banks in Minnesota Towns," Unpublished, 1963.

George Kaufman, "Bank Market Structure and Performance: The Evidence from Iowa," Unpublished, 1964.

Theodore G. Flechsig, "The Effect of Concentration on Bank Loan Rates," *Journal of Finance*, May 1965, pp. 298-311.

Franklin Edwards, "Concentration in Banking and Its Effect on Business Loan Rates," *Review of Economics and Statistics*, August 1964; and *Concentration and Competition in Commercial Banking: A Statistical Study*, published as Research Report No. 26 by the Federal Reserve Bank of Boston.

serves the public, in terms both of the cost and the availability of banking services. Two objectives—in some degree conflicting—have been sought: the attainment of an "efficient" banking system which is to some extent "failure-proof."

Generally, "efficiency" is associated with competition. Under conditions of "perfect" competition profits are maximized at prices and levels of output which bring about an optimum allocation of resources. At the other extreme is monopoly, which results in higher prices, lower output, and a suboptimum allocation of resources. Consequently, so the argument runs, the more "competitive" an industry, the more "efficient" it is.

Other considerations, however, make it difficult to choose between the objectives of "efficiency" and "soundness." For example, competition forces "inefficient" firms to leave the market because they cannot charge prices high enough to cover their costs. Under monopolistic conditions, high cost firms are afforded a certain degree of immunity from the forces of competition, which permits them to operate inefficiently and still survive. Thus, a monopolistic industry is more compatible with the goal of maintaining a "failure-proof" banking system, while competition is more compatible with the goal of "efficiency."

The existence of substantial economies of scale, which could benefit bank customers by lowering costs, makes the choice even more difficult. Since economies of scale occur as bank size increases, there is usually a reduction in the number of competitors. Thus, another dimension is added to "efficiency," one that cannot be equated with "competition" in the narrow sense of "number of competitors." As long as economies of scale exist, a judgment has to be made about the extent to which diminished competition is offset by the benefits of lower costs.[2]

As might be expected, there are a variety of views concerning the application of these considerations to the problem of banking competition. At one extreme are those unwilling to tolerate *any* bank failures. They argue that banking is unique because isolated failures may undermine confidence in the entire banking system, producing severe repercussions throughout the economy. Since they consider the gain from increased efficiency as small compared to the risk associated with bank failures, they are willing to sacrifice "efficiency" for "soundness." At the other extreme are those who believe that, under the present institutional framework, our economy would not be affected by even a sizeable number of bank failures. They argue that deposit insurance and an enlightened monetary policy are capable of preventing "panics" induced by bank failures. These observers are willing to sacrifice some "soundness" for more "efficiency."

Although this difference epitomizes the banking competition controversy, another point of view has also emerged recently. It is argued that, since the typical banking market is already oligopolistic, conventional antitrust or regulatory policy aimed at altering market structure is incapable of increasing the "efficiency" or quality of bank performance. It is contended that small changes in concentration brought

---

[2] For statistical analyses of the extent of economies of scale in banking, see:

David A. Alhadeff, *Monopoly and Competition in Banking*, Berkeley, California: University of California Press, 1954.

Lyle E. Gramley, *A Study of Scale Economies in Banking*, Federal Reserve Bank of Kansas City, Department of Research, November 1962.

Paul Horvitz, "Economies of Scale in Banking," *Private Financial Institutions*, Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

Stuart I. Greenbaum, "Banking Structure and Costs: A Statistical Study of the Cost-Output Relationship in Commercial Banking," Johns Hopkins University: Ph.D. dissertation, 1964.

George Benston, "Economies of Scale and Marginal Costs in Banking Operations," *The National Banking Review*, 2, June 1965, pp. 507-549.

about through the merging of competing banks fail to affect bank performance. Perhaps the leading exponent is Almarin Phillips, who writes:

> It would be possible and, within limits, it probably is desirable to improve the performance of commercial banking markets. It appears, however, that the role of conventional antitrust policy—the prevention of mergers and combinations in restraint of trade—in achieving this result is an extremely limited one, because of the continuing necessity for some public regulation and supervision and also because of the impossibility of altering substantially the oligopolistic structure of the typical banking market.[3]

This view has been accepted by other economists as well. For example, Robert Holland writes:

> At the other extreme, SMSA's extend, roughly speaking, from those in which the three largest banks control about 50 percent of the deposits to those where the three largest banks control about 95 percent of the deposits. Most are in the 75 to 85 percent area. It is doubtful that markets where three firms had 95 percent of deposits would demonstrate, other influences being equal, markedly different results from those observed in markets where the concentration ratio was 50 percent.[4]

If bank performance is not affected by changes in the structure of banking markets, it follows that regulatory authorities need not be overly concerned about bank mergers. The emphasis of those who hold this view, understandably, is upon changes in the "organization" of banking —the participation in such organizations as clearing house associations, trade associations, and the like—rather than upon changes in the structure of banking markets.[5]

Although some improvement in bank performance might be achieved by changes in bank organization alone, this paper disputes the conclusion that "bank performance does not vary with market structure." It will be seen that, even with only small structural differences among banking markets, structure exerts a significant influence on bank performance.

The present study of banking markets differs from most because it investigates large city or metropolitan banking markets, while others have focused primarily on small communities with few banks. The emphasis on small communities is not surprising, since large cities offer greater conceptual difficulties. For example, it is easier to define bank "products" and simpler to determine the relevant banking market in small isolated communities.[6] But since almost three-quarters of total bank deposits are held by city banks, and since important changes in banking structure within the last 15 years have occurred in large cities,[7] these banking markets are too important to neglect.

In Section II, the theory of monopolistic competition—a theory commonly used to describe the competitive process

---

[3] Almarin Phillips, "Competition, Confusion, and Commercial Banking," *Journal of Finance*, March 1964, p. 43.

[4] "Research into Banking Structure and Competition," *Federal Reserve Bulletin*, November 1964, p. 1391, note 10.

The position taken by Phillips and Holland is also supported by studies of other industries. See especially Joe Bain, *Industrial Organization*, Berkeley, California: University of California, pp. 408-416.

[5] Almarin Phillips, *op. cit.*, p. 44. "Regulation, then, will continue but the nature of regulation requires modification. If it is accepted that the organization, rather than the structure, of the industry is the controlling variable in determining performance, it follows that the primary means of altering performance is through changing the organization, especially that part which emanates from regulations."

[6] Shull and Horvitz, "The Impact of Branch Banking on Bank Performance," *The National Banking Review*, 2, December 1964.

[7] United States Congress, House Judiciary Committee, "Recent Developments in the Structure of Banking," January 1962. Almost half of all banks merged during this period (1951-1962) were absorbed by banks with assets of $100 million or more, or by city banks.

in banking—is reviewed briefly. Section III examines the market for bank products; and Section IV subjects the relationships suggested by economic theory to empirical verification.

II. *The Theory of Monopolistic Competition*

The economic theory most applicable to banking markets is often thought to be "monopolistic competition," since the typical large city banking market consists of many banks selling somewhat differentiated products.[8] Moreover, the theory is concerned with "group" equilibrium—and a comparison of two or more banking markets necessitates some such theory.

A common model of "individual" or firm equilibrium based upon the theory of monopolistic competition is that of "multiple-product price discrimination."

> The theory of multiple-product production and price discrimination seems to summarize the strategic characteristics of banking, and relates the structures of the markets in which banks operate to the objectives of the bank's management. It holds some promise of extending our understanding of the process of competition among banks.[9]

In this model, banks behave as multiple-product firms which separate their markets and customers in order to practice price discrimination. Each bank's profits are the difference between its total revenue from all markets and its total cost of production.

For the simple case of two separate loan markets, the model is:

$$\Pi = R_1(q_1) + R_2(q_2) - C(q_1 + q_2)$$

where q_1 and q_2 are the total loans which the bank makes in each market, $R_1(q_1)$ and $R_2(q_2)$ are the respective revenue functions, and $C(q_1 + q_2)$ the bank's total cost function. In order to maximize profits, the bank sets its marginal revenue in each market equal to the marginal cost of its total output, or:

$$\frac{\partial \Pi}{\partial q_1} = R'_1(q_1) - C'(q_1 + q_2) = 0$$

$$\frac{2\Pi}{2 q_2} = R'_2(q_2) - C'(q_1 + q_2) = 0$$

$$R'(q_1) = R'_2(q_2) = C'(q_1 + q_2)$$

Denoting interest rates and demand elasticities in the two markets by i_1, i_2, e_1, and e_2, the above equality can be formulated as:

$$i_1\left(1 - \frac{1}{e_1}\right) = i_2\left(1 - \frac{1}{e_2}\right)$$

$$\frac{i_1}{i_2} = \frac{1 - \frac{1}{e_2}}{1 - \frac{1}{e_1}}$$

It is clear that interest rates will be equal in the two markets only if demand elasticities are equal. Whichever market has the lowest elasticity of demand will also have the highest interest rate.[10]

This theory may also be applied to more than two markets, and for "groups" of banks, if we make the "heroic" assumption that both demand and cost curves for each product are uniform throughout all groups. Further, if all groups have identical cost curves and levels of de-

[8] See Lester Chandler, "Monopolistic Elements in Commercial Banking," *Journal of Political Economy*, February 1938; and David Alhadeff, *Monopoly and Competition in Banking*, Los Angeles: University of California Press, 1954.

[9] Bernard Shull, "Commercial Banks as Multiple-Product Price-Discriminating Firms," *Banking and Monetary Studies*, Homewood, Illinois: Richard D. Irwin, Inc., 1963, p. 354.

[10] A low elasticity of demand is associated with monopoly and a high elasticity of demand with competition. Thus, the interest rate is higher in the monopolistic market. See Henderson and Quandt, *Micro-Economic Theory*, New York: McGraw-Hill Book Company, 1958, pp. 170-172.

mand, the equilibrium price will be highest for that group which has the lowest elasticity of demand. In his analysis of "group" equilibrium, Edward Chamberlin concludes, "the price is inevitably higher and the scale of production inevitably smaller under monopolistic competition than under pure competition."[11] It is generally agreed that monopoly power results in higher prices and lower output than would occur under more competitive conditions. However, economic theory makes clear the need to distinguish the effects of market structure from those of differences in demand and costs. We can only point to monopoly as the determinative factor if interest rates are higher in one market than in another and if this difference cannot be explained by differences either in demand or costs.

Moreover, although the theory of monopolistic competition does not necessarily conclude that firms operating in monopolistic markets will earn higher profits, it is usually believed that "group" disequilibrium in imperfect markets will result in higher than "normal" industry profits. If "free entry" were always possible, monopoly profits would be eliminated by the invasion of new firms.[12] But to the extent that "free entry" is made impossible by monopolistic conditions, we would expect higher profits in less competive markets.[13] In sum, conventional interpretation of the theory of monopolistic competition suggests that less competition results in higher prices, lower output, and greater profits.

The following two sections compare the kinds of market structure which are associated with different kinds of bank performance. If the theory of monopolistic competition is applicable to banking markets, it should explain much of the bank behavior we observe.

III. *The Market for Bank Services*

Definition of a relevant economic market for bank services is crucial to an investigation of the relationship of bank performance to market structure, for all measures of monopoly or competition depend upon which "market" is accepted as correct. During the past few years, the "relevant market" has been an issue in all banking antitrust cases.

When deciding on general criteria for defining metropolitan banking markets, three questions are usually raised: (1) Does branching make a difference in how the market should be defined? (2) What difference does the size of the city make? (3) Do legal boundaries (such as state lines) effectively separate markets even within metropolitan areas? Both economists and judges have raised these questions. For example, Shull and Horvitz say:

> Metropolitan areas must generally be considered as a single local market where branch banking is permitted. This is true of the large as well as the small. The center city banks themselves can provide direct service and access to their institutions throughout all suburban areas. In any one suburban section, served by one

---

[11] Edward Chamberlin, *Monopolistic Competition*, Cambridge, Mass.: Harvard University Press, 7th ed., 1958, p. 82.

[12] Free entry results in a "tangency solution" between demand and cost curves, so that only "normal" profits are earned.

[13] Edward Chamberlin, *op. cit.*, pp. 82, 113, 194–195:

"To sum up this phase of the matter, our statement of the group problem must be modified by recognizing that the demand curves are not adjusted uniformly to a position tangent to the cost curves. In so far as profits are higher than the general competitive level in the field as a whole or in any portion of it, new competitors will, if possible, invade the field and reduce them. If this were always possible, as hitherto assumed, the curves would always be tangent and monopoly profits would be eliminated. In fact it is only partially possible. As a result, some (or all) of the curves may lie at various distances to the right of the point of tangency, leaving monopoly profits scattered throughout the group —and throughout the price system." (p. 113)

or more city banks, there are pressures making rates similar to those existing in all other sections. The threat of entry, via branching, tends to keep rates from rising to levels consistent with supply and demand conditions in the suburban section alone. Moreover, some rates, e.g., those on saving deposits and consumer loans, are typically advertised, and geographic discrimination is impractical.

However, the unit banking metropolitan area presents a different case. There will be some people who live and work in the suburban areas and, thus, do not have direct access to the banks based in the center of the city. Moreover, people in one suburb will not necessarily have direct access to banks in other suburbs, even if they work or conduct their business in the center city. There will be less pressure from the threat of entry to prevent wide disparities in rates. . . . Thus, for many people the number of alternative sources could be considerably less than the number of banks in the area. The larger the area, the more numerous the markets contained therein.[14]

They conclude that branch banking metropolitan areas may be considered as single markets, whereas unit banking metropolitan areas probably cannot. In reaching this conclusion, Shull and Horvitz use the degree of price disparity among banks as a guide for defining the relevant banking market. They suggest two hypotheses: first, that rates (prices) are more uniform in metropolitan areas in which branching is permitted; and, second, that the larger the geographical area, the greater is the disparity among prices, particularly in a unit banking area. The latter hypothesis is based upon the theory that the market becomes less perfect or, in fact, becomes many distinct markets as the spatial area is increased. Increasing inconvenience and poorer information about market alternatives would alone result in greater price disparity. The former hypothesis, on the other hand, is based upon the theory that freer entry through branching will stimulate competition, resulting in more uniform pricing.

A third hypothesis is suggested by the Supreme Court in U.S. v. Philadelphia National Bank (1963):

> We think that the four-county Philadelphia metropolitan area, which *state law apparently recognizes as a meaningful banking community* in allowing Philadelphia banks to branch within it, and which would seem roughly to delineate the area in which bank customers that are neither very large nor very small find it practical to do their banking business, is a more appropriate [than the entire SMSA] section of the country in which to appraise the instant merger than any larger or smaller area.[15]

The Court implies that state boundaries separate and distinguish banking markets from one another because of the prohibition against branching across state lines. It supports this conclusion by showing that a large share of the business done by Philadelphia banks originates in the four-county Pennsylvania area, but that very little originates in the New Jersey counties. Although the evidence suggests a distinction, it does not prove that Philadelphia banks are able to practice more

---

[14] "Branch Banking and the Structure of Competition," *The National Banking Review*, 1, March 1964, pp. 328-329.

Most observers have referred to loan rates rather than to rates on time and savings deposits because it is commonly agreed that differences among loan rates are more likely, since rates on time and savings deposits are more standardized and easier to "shop." To the extent that we find differences among rates on time and savings deposits, we would expect even greater differences among loan rates.

[15] 83 S. Ct. 1715, 1740 (1963). Emphasis supplied by author.

See also, David C. Motter, "Bank Mergers and Public Policy," *The National Banking Review*, 1, September 1963, pp. 89-100; Victor Abramson, "Private Competition and Public Regulation," *Ibid.*, pp. 101-105; and related Comments and Rejoinders in *The National Banking Review*, 1, March 1964.

Areas Selected for Study

Metropolitan area and type of Banking Law	Total population in 1960 (in thous.)	Percentage change in population from 1950–1960	Mean income per family (in thous.) (1960)	Concentration (Percentage of total commercial bank deposits held by largest two banks) (1962)
Unit Banking				
Chicago, Illinois	6,220	20%	7.34	42.2%
Dallas, Texas	1,083	46	5.92	64.2
Denver, Colorado	929	52	6.55	44.3
Duluth—Superior, Minn., Wis.	267	9	5.45	47.9
Fort Worth, Texas	573	46	5.61	66.7
Houston, Texas	1,243	54	6.04	44.5
Jacksonville, Florida	455	50	5.34	59.9
Kansas City—Mo.-Kan.	1,039	28	6.31	38.0
Miami, Florida	935	89	5.34	36.8
Minneapolis-St. Paul, Minn.	1,482	29	6.84	77.4
Oklahoma City, Oklahoma	511	30	5.60	58.1
Orlando, Florida	318	125	5.09	43.3
Peoria, Illinois	288	15	6.23	51.3
St. Louis, Mo.-Illinois	2,060	20	6.27	34.9
San Antonio, Texas	687	37	4.76	50.2
Tampa-St. Petersburg, Florida	772	89	4.49	25.0
Tulsa, Oklahoma	418	28	5.72	68.6
Waco, Texas	150	15	4.85	79.7
Wichita, Kansas	343	54	6.16	64.9
Limited Branching				
Allentown-Bethlehem-Easton, Pa.-N.J.	492	15	5.85	28.9
Boston, Massachusetts	2,589	−7	6.68	52.2
Cincinnati, Ohio-Ky.	1,071	19	6.31	54.7
Dayton, Ohio	694	34	6.68	57.5
Detroit, Michigan	3,672	25	6.82	54.5
Erie, Pennsylvania	250	14	5.73	68.7
Harrisburg, Pa.	345	17	5.88	49.8
Philadelphia, Pa.-N.J.	4,342	18	6.43	36.0
Pittsburgh, Pa.	2,405	9	5.95	72.5
Scranton, Pa.	234	−9	5.00	64.2
Syracuse, New York	563	21	6.40	55.2
Statewide Branching				
Baltimore, Maryland	1,727	23	6.19	50.2
Hartford, Connecticut	525	29	7.18	88.9
Portland, Oregon	821	17	6.34	77.0
Providence, Rhode Island	816	7	5.66	85.3
San Francisco, California	2,783	24	7.09	65.1
Seattle, Washington	1,107	31	6.89	59.6

effective discrimination than would be possible if New Jersey banks were also permitted to open branches in the four-county Philadelphia area, or vice-versa. For instance, although banks cannot operate branches in states other than their own, bank customers are free to cross state boundaries at will. The question, therefore, is whether borrower mobility is great enough to make the entire metropolitan area, rather than only the four-county area, the relevant market. If customer mobility is great enough to make New Jersey banks "real" alternatives, the monopolistic impact of a merger in Philadelphia would be less than the court determined it to be, since customers could thwart discrimination by banking elsewhere. In other words, using a seven-county area instead of a four-county area reduces the increase in concentration which would result from such a merger.

A. State Boundaries as a Divisive Market Factor

The weight of evidence indicates that legal boundaries *do* separate banking markets. Schweiger and McGee find:

> The imperfection of the capital market for these two types of loans [new automobile loans and unsecured personal instalment loans] showed up not only in wide variation of rates within each city but in a major difference in rates between adjacent territories which were separated only by legal barriers governing entry of banking competition.[16]

Previous studies, however, were concerned with differences either between nearby cities, such as Boston and Providence, or between a city and adjacent suburbs, such as New York City and Nassau County. A more revealing test of the impediments imposed by state boundaries is possible where a metropolitan area is divided by a state boundary, since customer mobility in such areas is greater because of greater economic integration.

Of the metropolitan areas investigated in the present study, two branching areas (Philadelphia and Cincinnati) have state boundaries dividing them.[17] Both were tested to determine whether a significant difference in "mean" prices exists between the divided areas.[18]

It is obvious that two markets may have identical or nearly identical prices because of a coincidental combination of supply, demand, and structure. However, when a significant difference does exist between the "mean" prices in two areas, they may be taken as different markets. This null hypothesis is therefore tested: Metropolitan areas which are divided by state boundaries are single banking markets. If the test reveals significant differences between the divided areas, the hypothesis must be rejected. Otherwise, we will accept these areas as single banking markets.

The tests show that, in the two branching metropolitan areas divided by state boundaries, there are significant differences at the 1 percent level in the "mean" rates paid on time and savings deposits. A reasonable inference is that these differences result from the state boundaries, which prevent unification of the markets by restricting branching.[19] The inference seems especially plausible since branching leads to uniform pricing in metropolitan areas (see Table 1).

B. The Effects of Branching and Spatial Area on Markets

The "variance" (of the distribution) of prices is investigated in order to compare the degree of price disparity among metropolitan areas. A greater "variance" indicates less uniformity, or a greater degree of price disparity. The "variances"

---

[16] Schweiger and McGee, "Chicago Banking," *The Journal of Business of the University of Chicago*, July 1961, p. 258. Brackets supplied by author.

See also, *Branch Banking, Bank Mergers and the Public Interest*, New York State Banking Department, January 1964; and, Motter and Carson, "Bank Entry and the Public Interest: A Case Study," *The National Banking Review*, 1, June 1964.

[17] See Appendix A for a discussion of the sample data.

[18] Since the assumption of homogeneous variance is violated, an analysis-of-variance test is not appropriate. The following t-test is therefore used:

$$\frac{\overline{X_1} - \overline{X_2}}{\frac{S_1}{\sqrt{N_1}} + \frac{S_2}{\sqrt{N_2}}},$$

where N_1 are the banks on one side of the boundary and N_2 are those on the other side; S_1 and S_2 are the respective standard deviations of each group; and $\overline{X_1}$ and $\overline{X_2}$ are the respective mean interest rates.

[19] It makes no difference which areas have the highest or lowest rates, since once the areas are shown to be separate and distinct, many factors combine to determine absolute levels of rates. More important is the fact that there exists a significant difference between the areas.

Table 1

Variance of Rates Paid on Time and Savings Deposits in Metropolitan Areas, by Size of City and Type of Banking. (Variance of Rates Expressed in Basis Points and Variances of Bank Size in Millions of Dollars of Deposits).*

Population of SMSA (thousands)		Unit banking metropolitan areas	Branching metropolitan areas
100—450	Variance of Interest Rates	.252	.042
	Variance of Bank Size	1.37	.96
	Average Number of Banks in SMSA's	25	20
	Number of SMSA's in Group	6	3
450—1,000	Variance of Interest Rates	.238	.098
	Variance of Bank Size	4.85	3.31
	Average Number of Banks in SMSA's	36	25
	Number of SMSA's in Group	7	3
1,000 and over	Variance of Interest Rates	.278	.144
	Variance of Bank Size	34.93	86.03
	Average Number of Banks in SMSA's	111	56
	Number of SMSA's in Group	6	5

* These averages are derived by calculating the "variance" for each SMSA and then taking the mean of these "variances" for all SMSA's in each cell. Statewide branching areas are excluded because the only available data are for all branches of a bank, with no way to separate metropolitan area branches from nonmetropolitan area branches.

found in unit- and limited-branching metropolitan areas are given in Table 1.[20]

The table shows, first, that branching results in greater uniformity of pricing; and, second, that in both branch and unit banking markets, price disparity generally increases with the size of the metropolitan area. This association, surprisingly, is especially pronounced in branching areas. Table 1 reveals that price disparity also increases with the variance of bank size, showing the effect of product differentiation.[21] Moreover, despite the fact that the variance of bank size is sometimes greater in branching areas than in unit areas, price disparity is always lower in branching areas. The impact of branching on bank pricing, therefore, is even greater than might appear from Table 1.[22]

Since it is clear that bank pricing in unit areas is less uniform than in branching areas, the question is whether the price disparity in unit areas is "too great" to consider these areas as single markets.

[20] It is clear that the degree of price disparity is no indication of the degree of competition. There are two market situations in which uniformity of pricing is expected: "pure" competition and "pure" monopoly. Since neither is likely, some price disparity is expected in most markets. The difficulty, therefore, arises in interpreting price disparity. Does less price disparity imply more competition or more monopoly?

[21] It is likely that bank size is associated with the "quality" of a bank's services. For example, a Certificate of Deposit of a large bank may be of higher "quality" than one issued by a small bank even though both carry identical rates, since the risk to the customer differs. To the extent that bank pricing reflects differences in the quality of bank services, we would expect more price disparity where variations in quality are greatest (or where variations in bank size are greatest). For an interesting discussion of the effects of product differentiation on firm behavior, see James Duesenberry, *Business Cycles and Economic Growth*, Ch. 6, New York: McGraw-Hill Book Company, 1958.

[22] The above analysis, of course, indicates "tendencies" rather than exact quantitative effects. Variation of bank size may be an inadequate proxy for quality differences, and may even reflect certain structural aspects of the market, such as the degree of interdependence, etc.

To estimate the importance of branching, a regression was fitted for 36 metropolitan areas:

Can we assume that metropolitan areas are relevant banking markets in unit areas as well, or, as Shull and Horvitz have suggested, are unit areas really many separate smaller markets? Even the smallest unit metropolitan areas have greater price disparity than the largest branching areas!

A simple, although admittedly arbitrary, analytic method is to analyze the difference between the "mean" prices of suburban and city banks in unit areas, using a test similar to that used earlier for investigating the effect of state boundaries (see footnote 18). If a difference is found between city and suburban banks, it will support the hypothesis that unit metropolitan areas are not single banking markets. If no difference is found, the evidence will be stronger that unit metropolitan areas are single banking markets, as are branching areas.

Suburban and city banks are distinguished from each other because it is convenient and because price disparity is consistently greater among suburban banks. For example, of the 19 unit metropolitan areas, only one has greater price disparity (variance) among city banks than among suburban banks. Moreover, seven have a significantly greater variance among suburban banks (at the 5 percent level of significance). These findings suggest that price disparity in unit metropolitan areas can be reduced by excluding all suburban banks and using only the city as the banking market.[23]

Testing the difference between the "mean" prices of suburban and city banks also shows that only 3 of the 19 unit areas display a significant difference (at the 5 percent level), and only one of the three shows a difference at the 1 percent level of significance. Appropriately, the area showing the most significant difference is Chicago, the largest. As very few differences are found, the implication is clear: Suburban banks are *not* distinguishable from city banks, even in unit metropolitan areas.[24] (Although only three significant differences are found, Table 2 nevertheless indicates that price disparity in *large* unit banking areas is reduced by excluding suburban banks.)

Although the distinction between suburban and city banks is admittedly arbitrary, there is some logic in believing that banks become more immune to competition as they operate further from city-centers. But with the exception of very large unit banking areas, such as Chicago, customer mobility seems great enough to disseminate competitive pressures throughout the entire metropolitan area. On the evidence of the foregoing tests,

$$Y = 0.16583 - 0.000000015\,X_1 - 0.12975\,X_2 + 0.0013857\,X_3$$

$$R^2 = 0.2772$$

Where:

- Y = Variance of interest rates on time and savings deposits, in basis points;
- X_1 = Variance of bank size, in millions of deposits;
- X_2 = Branch or unit SMSA, dummy variable for each SMSA;
- X_3 = Concentration in each SMSA, defined as the percent of total deposits held by the largest three banks.

The only significant coefficient at the 5 percent level is X_2, or branch banking. On average, a branch banking SMSA has a lower price variance by 0.1298 basis points. Since the mean of Y is 0.1955 basis points, the reduction caused by branching is substantial.

[23] The standard F-test is used to test the difference between two variances. City banks are defined as those banks located inside city boundaries; suburban banks are those outside city limits but still inside the metropolitan area.

[24] For a sample of 19, we would expect one or two differences to occur by chance. On the other hand, if the lack of significant differences were due simply to coincidence, we would expect more than three areas to display significant differences.

Of course, a metropolitan area may have a high degree of price disparity and still not show a significant difference between the "mean" prices of suburban and city banks. Since we do not know what degree of price disparity is too great for an area to be a relevant banking market, the "absolute" degree of price disparity is not very helpful.

Table 2

Variation of Rates Paid on Time and Savings Deposits in Unit Metropolitan Areas After Omission of Suburban Banks, by Size of City. (Variance of Rates Expressed in Basis Points and Variance of Bank Size in Millions of Dollars of Deposits)

Population of SMSA (in thousands)		Unit Metropolitan Areas
100—450	Variance of Interest Rates	.265
	Variance of Bank Size	23.40
	Average Number of Banks in SMSA's	8
	Number of SMSA's in Group	6
450—1000	Variance of Interest Rates	.232
	Variance of Bank Size	7.48
	Average Number of Banks in SMSA's	19
	Number of SMSA's in Group	7
1,000 and over	Variance of Interest Rates	.186
	Variance of Bank Size	86.20
	Average Number of Banks in SMSA's	37
	Number of SMSA's in Group	6

therefore, we cannot reject the hypothesis that the entire metropolitan area constitutes a relevant banking market.

In summary, the answers this section provides to the initial three questions (p. 5) are: (1) Although both branching and unit metropolitan areas may be considered single banking markets, branching substantially reduces the price variation among banks; (2) Although the degree of price disparity varies directly with the size of the city, a significant difference is found between average prices in different sections of the metropolitan area (suburban v. city) *only* in very large unit banking areas; and (3) Legal boundaries, such as state lines, effectively separate banking markets in branching areas by restricting branching. Thus, in conformance with these findings, we define the relevant market for banking services to be the metropolitan area.

IV. *Market Structure and Bank Performance*

Like most entrepreneurs, bankers are subject to the competitive pressures of the market, even though banking is a highly regulated industry. There is wide disagreement, however, about the importance of competition in banking and about its diverse effects. Does the typical bank customer fare better or worse under conditions of more or less competition? What kinds of bank performance are associated with different kinds of market structure? If some sort of regulatory policy is necessary to maintain competition, which kind?

A. Previous Studies

After surveying studies of the relationship of market structure to bank performance, Robert Holland concludes: "We have made little progress in our search for an answer to the question of the impact of structure upon performance."[35] He based his conclusion primarily upon four studies: two by the Federal Reserve Board, one by George Kaufman at the Federal Reserve Bank of Chicago, and one by the present author. The last two studies find a statistically significant relationship between market structure and

[35] *Op. cit.*, p. 139.

bank performance, while the first two do not.

Of the studies by the Federal Reserve Board, one investigates short-term loans to businesses by large banks in 19 major cities. It fails to find an "identifiable relationship . . . between concentration ratios and the level of interest rates on business loans."[26] The other study investigates small towns in Minnesota and also fails to find any such relationship. On the other hand, Kaufman's study, which investigates bank performance in several Iowa counties, concludes that "high market concentration . . . is associated with higher interest charged on loans, lower interest paid on time deposits, higher service charges on demand deposits, and lower ratios of loans to assets and time deposits to total deposits." My earlier study supports Kaufman's findings with evidence showing that structure significantly affects small-business loan rates.[27]

Further, a recent study by Shull and Horvitz concludes that the presence of a branch office, or even the possibility of entry by branching, significantly affects both interest rates paid on time and savings deposits and interest charged on loans.[28] They also find a relationship between rates on time and savings deposits and the number of banks in the market. Although their study focuses on one- and two-bank towns and is directed primarily towards evaluating the impact of branching, their results, broadly interpreted, favor the thesis that structure partially determines bank performance.

It is clear that previous studies are conflicting, and that considerable disagreement exists among observers who have made the effort to find answers. The present study, by focusing on metropolitan areas where the structural variation is greatest, provides additional evidence to support the hypothesis that structure *does* affect performance.

B. Dimensions and Measures of Market Structure

Market structure is a general term referring to the organization of firms in the market and to the relationship among them. It clearly has many dimensions—all of which escape accurate measurement. Although this study does measure monopoly, the measures are used more as relative rankings among different markets rather than as estimates of the absolute degree of monopoly. No single measure of structure precisely reflects the degree of monopoly. Nor does economic theory help us to choose which measure is best, or which dimension is most important. A feasible approach, therefore, is to investigate the relationship of various measures of structure and bank behavior that may be interpreted as monopolistic on nonempirical grounds. For these reasons, we shall experiment with several measures of market structure, each encompassing a somewhat different structural dimension.

A measure in common use by economists is the "concentration ratio," which reflects the size distribution of firms in a market. A familiar form of this ratio is the proportion of the business accounted for by the largest two or three firms in the market. We apply it chiefly as the percentage of total deposits held by the largest two banks.[29]

---

[26] For a summary of this study, see Theodore G. Flechsig, "The Effect of Concentration on Bank Loan Rates," *Journal of Finance*, May 1965, pp. 298-311.

[27] *Op. cit., The Review of Economics and Statistics*, August 1964, pp. 294-300. For a contrary view of my study, see Flechsig's paper, *ibid.*, p. 308.

[28] *Op. cit.*, December 1964.

[29] Although concentration ratios are commonly used in empirical analyses, they are fraught with conceptual difficulties. For example, should they be based upon the largest two banks, three banks, or eight banks? (For this study, the simple correlation between ratios based upon the largest two and three banks is .90.) Or, what proportion of each bank's deposits should be included in the calculation of these ratios? Only naive observers would argue that *any* single

Two other measures are also investigated, although, as it turns out, unsuccessfully. First, average population per bank and per bank office are sometimes thought to indicate the extent to which rival banks compete for customers. Where average population per bank is high, it is argued, banks are less likely to compete vigorously for customers, since their markets are large enough for them to operate profitably without acquiring additional customers. Second, a measure of "actual" entry into the market is investigated. Given the number and size distribution of banks in different markets, the market for which the "threat of entry" is greatest will display the most competitive behavior. Although it is impossible to measure the "threat of entry," "actual" entry is measured by the ratio of new banks chartered during the previous two years (1961 and 1962) to the total number of banks in the market. Both measures failed to show any association with the kind of bank performance which we would expect on an *a priori* basis. Thus, since these measures are poor estimates of structure or define relatively unimportant dimensions of it, primary reliance is placed upon the "concentration ratio" as the relevant measure of market structure.[30]

Another dimension of structure is banking organization—branch or unit. Two markets with identical levels of concentration might not display similar competitive behavior if branching is permitted in only one. With many branch offices scattered throughout the market (perhaps an entire state), a greater variety of competitive strategies may be available to a branch bank. For example, it may be able to use a "loss-leader" strategy more effectively by cutting prices in one area while maintaining them in others. Or, more effective nonprice tactics may be available, such as opening additional branches in response to a rival's attempt to increase his market share.

C. The Effect of Branching on Bank Performance

Branching has a substantial impact on several aspects of bank performance. Table 3 and Charts 1-7, which classify banks by size and type of metropolitan area, show performance characteristics for both branch and unit areas.[31] Several patterns are evident: Branching markets display slightly lower average rates on time and savings deposits, lower ratios of consumer-total loans and business-total loans, higher ratios of real estate-total loans, and higher ratios of loans to deposits.

Table 4 and Charts 8-14, which distinguish branch banks from unit banks in branching markets, show more clearly the impact of branching.[32] First, where before no consistent pattern emerged, Table 4 makes clear that branch banks charge the highest of all average loan rates. Sec-

measure could adequately measure monopoly or competition. Yet, decisions must be made and policies formulated. See Deane Carson and Paul Horvitz, "Concentration Ratios and Competition," *The National Banking Review*, 1, September 1963, pp. 105-110.

[30] There are some, however, who would claim that, since *only* concentration ratios are significant, market structure must really be unimportant. If it were important, would not all of the above measures be significantly related to bank performance! The answer, I believe, is: (1) that one dimension of structure may be important while another may not be (e.g., entry), and (2) that economic theory gives us no recipe for measuring these dimensions. Moreover, of all the above measures, the concentration ratio is perhaps the most appealing from a theoretical point of view.

Another dimension explored but not cited above is the effect of "other" financial institutions on bank performance. Measures such as "population per savings and loan association" and "number of savings and loan associations" failed to display any significant relationship with commercial bank performance.

[31] A similar analysis by Shull and Horvitz was done for banks operating in 31 states, *op. cit.*, December 1964, pp. 164-170.

[32] See Table B-1 through B-3 in Appendix B for a breakdown by size of metropolitan areas.

Table 3

Performance Characteristics of Branch and Unit SMSA Markets, 1962 (Means of Ratios for Individual Banks in Percentage Form)

Performance characteristics Type of SMSA	Millions of dollars in deposits							
	Under 5	5–10	10–25	25–50	50–100	100–200	200–500	Over 500
Rate on loans and charges:								
Branch market	6.3	6.0	5.9	5.8	5.6	5.7	5.4	5.2
Unit market	6.9	6.6	6.0	5.8	5.4	5.3	4.9	4.9
Rate on time and savings deposits:								
Branch market	2.6	2.7	2.7	2.7	2.8	2.8	2.8	3.0
Unit market	2.5	2.7	2.8	2.9	3.0	2.9	3.0	2.8
Business to total loans:								
Branch market	15.7	17.3	22.3	24.1	24.2	27.8	31.9	36.1
Unit market	16.2	21.6	25.0	27.9	34.9	30.4	40.6	49.3
Consumer to total loans:								
Branch market	24.8	25.1	24.9	23.4	24.1	27.2	22.9	17.6
Unit market	28.5	32.2	31.9	27.1	23.9	26.5	21.9	17.6
Real estate to total loans:								
Branch market	50.2	48.5	44.4	39.7	39.4	31.8	26.5	22.0
Unit market	33.1	34.2	33.4	30.5	22.7	19.9	13.2	13.9
Time to total deposits:								
Branch market	50.3	52.0	49.0	43.0	48.7	39.7	35.8	33.8
Unit market	41.5	43.5	45.0	45.2	39.3	35.1	26.4	32.8
Demand deposits to total deposits:								
Branch market	46.4	47.1	50.4	55.6	51.2	57.8	62.0	61.8
Unit market	54.6	55.7	54.6	55.5	60.5	64.8	73.5	67.1
Net current earnings to assets:								
Branch market	1.3	1.2	1.8	1.2	1.2	1.4	1.6	1.6
Unit market	1.3	1.2	1.1	1.1	1.2	1.3	1.7	1.6
Total loans to total deposits:								
Branch market	52.6	51.9	50.0	54.0	55.5	54.2	55.0	53.6
Unit market	45.8	44.7	46.1	47.7	47.5	48.7	50.5	51.4
Number of banks:								
Branch market	113	124	160	47	30	33	24	23
Unit market	223	229	281	108	44	26	18	10

Chart 1
Interest on Loans

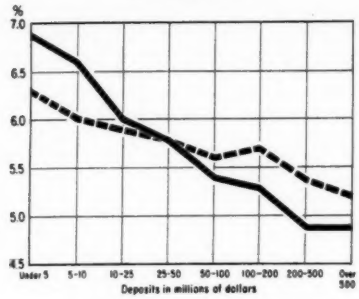


Chart 2
Interest on Time and Savings Deposits

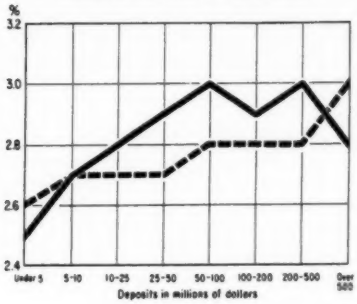


Chart 3
Business to Total Loans

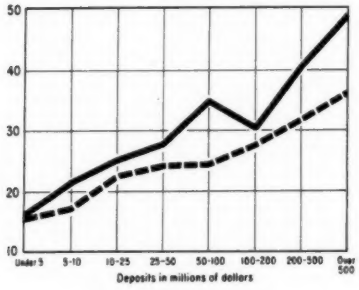


Chart 4
Consumer to Total Loans

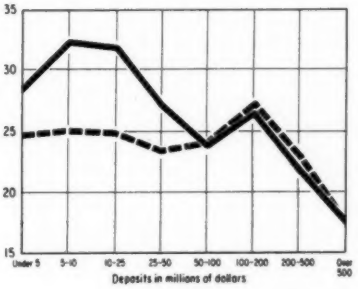


Chart 5
Real Estate to Total Loans

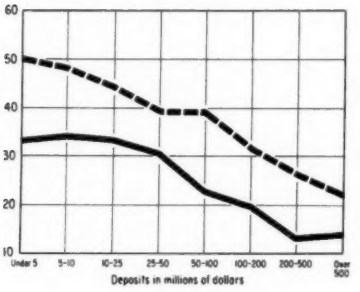


Chart 6
Net Current Earnings to Assets

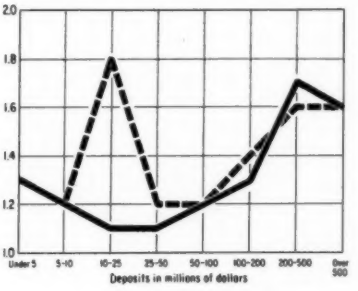
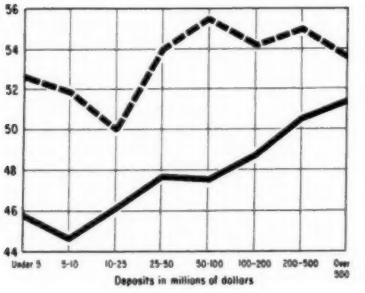


Chart 7
Total Loans to Total Deposits



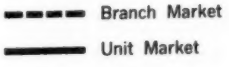


Table 4

Performance Characteristics of Banks in Branch and Unit SMSA Markets, 1962 (Means of Ratios for Individual Banks in Percentage Form)

Performance characteristics Type of SMSA	Millions of dollars in deposits							
	Under 5	5–10	10–25	25–50	50–100	100–200	200–500	Over 500
Rates on loans and charges:								
Branch Banks—Branch SMSA	7.34	6.10	5.94	5.93	5.61	5.71	5.40	5.48
Unit banks—Branch SMSA	6.17	5.92	5.74	5.40	5.77			
Unit banks—Unit SMSA	6.9	6.6	6.0	5.8	5.4	5.3	4.9	4.9
Rate on time and savings deposits:								
Branch banks—Branch SMSA	2.70	2.55	2.63	2.71	2.83	2.78	2.83	3.12
Unit banks—Branch SMSA	2.58	2.73	2.74	2.88	3.03			
Unit banks—Unit SMSA	2.5	2.7	2.8	2.9	3.0	2.9	3.0	2.8
Business to total loans:								
Branch banks—Branch SMSA	19.78	15.28	22.83	23.68	24.16	27.06	31.55	37.73
Unit Banks—Branch SMSA	15.13	18.38	21.52	25.81	25.00			
Unit banks—Unit SMSA	16.2	21.6	25.0	27.9	34.9	30.4	40.6	49.3
Consumer to total loans:								
Branch banks—Branch SMSA	25.05	29.19	27.44	24.94	24.59	27.30	23.01	18.45
Unit banks—Branch SMSA	24.79	23.07	21.48	17.25	19.76			
Unit banks—Unit SMSA	28.5	32.2	31.9	27.1	23.9	26.5	21.9	17.6
Real estate to total loans:								
Branch banks—Branch SMSA	39.00	45.55	41.81	38.14	38.70	32.14	26.08	23.03
Unit banks—Branch SMSA	51.82	50.01	47.80	46.14	45.71			
Unit banks—Unit SMSA	33.1	34.2	33.4	30.5	22.7	19.9	13.2	13.9
Time to total deposits:								
Branch banks—Branch SMSA	48.87	47.56	46.33	40.76	47.88	39.28	34.79	35.37
Unit banks—Branch SMSA	50.54	54.25	52.40	52.54	56.51			
Unit banks—Unit SMSA	41.5	43.5	45.0	45.2	39.3	35.1	26.4	32.8
Demand deposits to total deposits:								
Branch banks—Branch SMSA	49.44	51.63	52.93	59.10	52.05	58.20	62.89	64.62
Unit banks—Branch SMSA	45.94	44.78	47.11	40.67	43.45			
Unit banks—Unit SMSA	54.00	56.00	55.00	55.00	61.00	65.00	74.00	67.00
Net current earnings to assets:								
Branch banks—Branch SMSA	1.42	1.11	1.15	1.27	1.20	1.43	1.65	1.69
Unit banks—Branch SMSA	1.27	1.20	1.22	1.03	1.22			
Unit banks—Unit SMSA	1.3	1.2	1.1	1.1	1.1	1.3	1.7	1.6
Total loans to total deposits:								
Branch banks—Branch SMSA	55.39	53.72	51.01	52.88	55.81	54.10	54.93	56.05
Unit banks—Branch SMSA	52.18	51.03	48.77	58.47	52.62			
Unit banks—Unit SMSA	45.8	44.7	46.1	47.7	47.5	48.7	50.5	51.4
Total number of banks:								
Branch banks—Branch SMSA	14	42	91	38	27	32	23	22
Unit banks—Branch SMSA	99	82	69	9	3	1	1	0
Unit banks—Unit SMSA	223	225	281	108	44	26	18	10

Chart 8
Interest on Loans

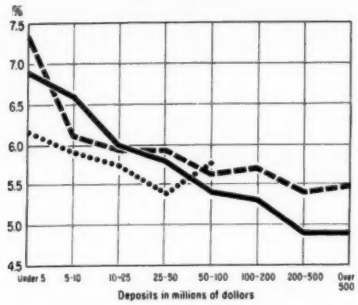


Chart 9
Interest on Time and Savings Deposits

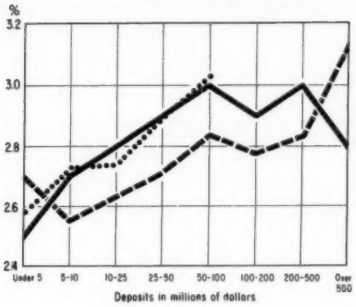


Chart 10
Business to Total Loans

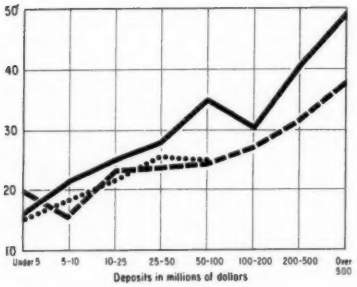


Chart 11
Consumer to Total Loans

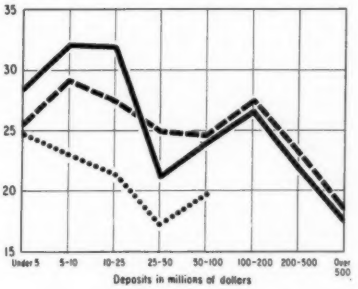


Chart 12
Real Estate to Total Loans

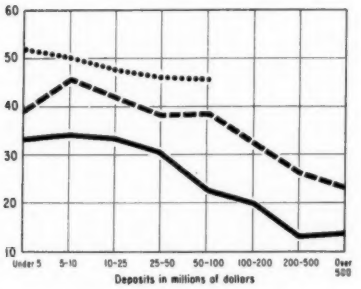


Chart 13
Net Current Earnings to Assets

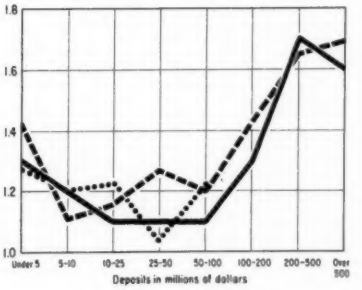
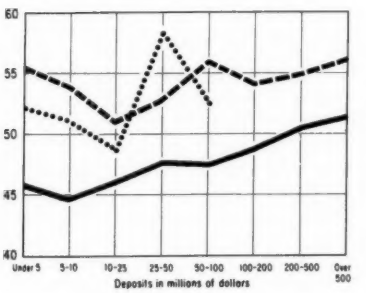
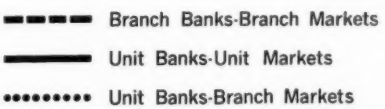


Chart 14
Total Loans to Total Deposits





ond, although branching markets display slightly lower average rates on time and savings deposits, the table shows that unit banks in branching markets pay rates equal to or higher than those paid by unit banks in unit markets, and branch banks pay the lowest of all rates. Third, branch banks, surprisingly, have lower ratios of consumer and business loans to total loans than those of unit banks in unit markets, although the opposite relationship prevails within branching markets. Fourth, the high ratios of real estate loans to total loans found in branching markets are the result of the high real estate ratios of unit banks in these areas. Fifth, unit banks in branching markets have by far the highest of all ratios of time-total deposits. And lastly, unit banks in branching markets, as well as branch banks themselves, have much higher ratios of loans to deposits than do other unit banks. Tables 3 and 4, therefore, make clear not only that branching markets differ from unit markets, but also that branch banks differ from unit banks that operate in the same markets.

That branch banks charge the highest average loan rates may be partially explained by differences in loan portfolios. For example, they often hold a greater volume of consumer loans, which are risky but high-yielding. There does not, however, appear to be a "good" explanation of why branch banks pay lower average rates on time and savings deposits. It is possible, of course, that the difference may simply reflect a competitive advantage which enables branch banks to gather deposits without competing vigorously. Other market aspects associated with branching, such as market concentration, may also partially explain this difference.[33]

Another finding is that ratios of loans to deposits are higher in branching markets, indicating that customers are able to obtain credit more easily where branching is permitted. Since branching has an obvious impact upon bank performance, therefore, its influence should be distinguished from that of other dimensions of structure, such as concentration.[34]

D. The Effect of Concentration upon Prices, Output, and Earnings

A dimension of structure which exerts an important influence on bank performance is market concentration. This section estimates the effect which concentration has on four aspects of bank performance: (1) interest paid on time and savings deposits; (2) interest charged on loans; (3) ratios of loans to deposits; and, (4) earnings. The first two are price statistics, the third measures bank output, and the fourth measures bank profitability.

1. *Bank Prices*

Of the two price variables investigated, one may be thought of as an "input" price and the other as an "output" price. They are the average interest rate paid on time and savings deposits, and the average interest rate charged on loans. The first variable (input price) is derived by dividing total interest paid during the year by the bank's total time and savings deposits at year's end. It is the effective rate which a bank pays to "buy" deposits,

---

[33] For example, the average level of concentration in each type of market is:

Unit SMSA's:	52%
Limited Branching SMSA's:	59%
Statewide Branching SMSA's:	69%

Of course, even though branching seems to have led to greater market concentration, this result is by no means inevitable. Since concentration *is* greater in branching markets, however, we might expect it to have some influence on bank performance. (See *Federal Reserve Bulletin*, September 1963).

[34] Tables 6 and 7 present identical multiple-regression equations both with and without branch observations. A comparison of the two sets of equations shows the effect of branch observations upon the estimated coefficients.

Table 5

Relationship Between Interest Rates and Concentration (With and Without Areas Permitting Statewide Branching)*

Concentration	Average rate on time and savings deposits		Average rate on loans	
	All areas	Excluding statewide branching areas	All areas	Excluding statewide branching areas
Low Range: 25—45% Average: 37%	2.85%	2.85%	6.17%	6.17%
Medium Range: 48—65% Average: 56%	2.72	2.65	6.30	6.37
High Range: 66—89% Average: 76%	2.59	2.63	6.68	6.98

* The simple correlation coefficients between concentration and rates on time and savings deposits and loan rates are, respectively, —.33 and .26. Concentration is defined as the percentage of bank deposits held by the largest two banks.

while the interest rate on loans is the price a bank charges for its product.[35] The second variable (output price) is derived by dividing a bank's total income from loans and discounts for the year by its total loans outstanding at year's end. No distinction is made between different kinds of loans, such as business and consumer loans. The composition of a bank's loan portfolio will therefore have some effect on this average rate.

Testing the Hypotheses. Two hypotheses are tested: (1) that highly concentrated markets have lower average rates on time and savings deposits; and, (2) that in such markets average loan rates are higher.[36] Classifying metropolitan areas into three groups according to their degree of concentration, Table 5 shows that the effect of concentration on these rates is consistent with the above hypotheses: In concentrated markets loan rates are higher and rates on deposits are lower. This simple scheme, however, does not permit us to conclude that concentration *significantly* affects bank pricing. For example, loan rates could be high because of high demand.[37] But since we usually find low demand in highly concentrated

[35] See Appendix A for a discussion of these computations.

[36] A pitfall to avoid when investigating bank pricing is the varied effect which regulatory-imposed interest rate ceilings may have on pricing at different points of the business cycle. For example, during "tight money market" periods, interest rate "ceilings" may blur the impact of structure on pricing because prices in all markets are crowding against the permissible maximums —reducing any variation which might result from structural differences. On the other hand, during "loose money" periods, regulation is not as likely to blur this impact because prices are low in all markets and are therefore relatively unconstrained by the ceilings. This was one of my findings in "Concentration and Competition in Commercial Banking: A Statistical Study," Ph.D. Dissertation, Harvard University, 1963 (Research Report of Federal Reserve Bank of Boston, No. 26, 1964), pp. 64-71. Structure was significant in 1955 but not in 1957, a year of very tight money.

In response to this peculiarity of bank pricing, the present study focuses on 1962, a period of steady and relatively low interest rates, rather high "net free reserves," and rapidly increasing bank deposits. Since 1962 was a "loose money" year, the importance of "price ceilings" should be minimized.

[37] Arguing that high demand results in high prices implies something about market supply curves or bank costs. It may imply, for example,

markets, the level of demand does not appear to explain the high loan rates in these markets.[38] With respect to rates on time and savings deposits, the impact of demand is not clear. Since these rates are low in markets having both high concentration and low demand, it is not evident whether they are the result of monopoly power or low demand.[39] Banks possessing substantial market power, of course, desire to maintain low rates on time and savings deposits and high rates on loans in order to maximize profits.[40]

To distinguish the effect of supply and demand from that of market power, the regression equations in Tables 6 and 7 were estimated. Equations 1, 2, and 3 reveal that, after accounting for differences in bank costs and regional demand, concentration has a significant negative association with rates on time and savings deposits. In a similar fashion, equations 4, 5, and 6 show significant positive associations between concentration and interest rates on loans. A 10 percentage point increase in concentration results, on the average, in a *decrease* of approximately 6 basis points in the average interest rate which banks pay on time and savings deposits, and an *increase* of 10 basis points in the average interest rate they charge on loans. Thus, an increase in concentration is harmful to bank customers in two ways: by lowering the return on their savings deposits, and by increasing the price they must pay for loans.

Some difficulty, however, arises in interpreting these results because of the intercorrelation among explanatory variables. Equations 1 and 4 do not include a regional demand variable and are therefore incomplete. Equations 2, 3, 5, and 6, on the other hand, introduce demand

---

that differences in supply among banking markets are too small to be important, which may be more reasonable than it would appear at first blush, since we are comparing similar kinds of banking markets—metropolitan areas.

[38] Since market demand escapes direct measurement, it is necessary to use proxy variables. Using as a proxy for demand the "percentage change in population" in each metropolitan area from 1950 to 1960, the simple correlation coefficient between demand and loan rates is .18, and between demand and rates on time and savings deposits .37. Further, the simple correlation between demand and concentration is —.35. Or, using as a proxy for demand the "deposits per capita" in each metropolitan area, the simple correlation coefficient between demand and loan rates is .10, and between demand and rates on time and savings deposits .26. The correlation between this proxy variable and concentration is .12.

It is not, of course, entirely clear just what these proxy variables represent. Do they represent the level of regional demand, regional supply, or the net effect of demand and supply? For example, although the level of income may indicate the demand for loans, it may also indicate the supply of bank deposits. See Cohen and Kaufman, "Factors Determining Bank Deposit Growth by State: An Empirical Analysis," *Journal of Finance*, March 1965, pp. 59-70. Finding "good" measures of regional supply and demand, however, is an empirical problem beyond the scope of this study. All that can be done here is to use those proxy variables which are appealing on the basis of *a priori* considerations and about which there is some degree of unanimity.

[39] If it is argued, on the other hand, that population growth is a better proxy variable for supply than for demand, highly concentrated markets would be "low supply" areas. This argument would reverse the inferences! The effect of demand on loan rates could no longer be distinguished from that of concentration, although now it would be possible to distinguish the effects on rates on time and savings deposits. Thus, even if population growth is thought to be a proxy for supply rather than demand, concentration still appears to have a distinguishable effect. The preferred interpretation, nevertheless, is the one employed above.

[40] The absence of a systematic relationship between concentration and loan composition makes it unlikely that portfolio differences can explain the relationship found between loan rates and concentration. The simple correlation coefficients are .60 between loan rates and the ratio of consumer-total loans, and —.61 between loan rates and the ratio of real estate-total loans, but the correlations between concentration and these ratios are nearly zero. See equations 4, 5, and 6.

Table 6

Regressions on all Metropolitan Areas, for Selected Performance Characteristics

Equation number	Performance characteristics	Constant term	Concentration: % of bank deposits in area held by the iargest two banks	Proxy for bank costs: average size of bank	Proxy for demand: % change in population (1950—60)	Proxy for demand: % deposits per capita	Consumer-total loans	R^2
(1)	Interest on Time deposits (SMSA)	3.0729	−0.0069† (0.0029)	0.0006† (0.0003)				.20
(2)	Interest on time deposits (SMSA)	2.85573	−0.0049‡ (0.0029)	0.0006† (0.0003)	0.0034‡ (0.0018)			.29
(3)	Interest on time deposits (SMSA)	2.9325	−0.0070† (0.0029)	0.0004 (0.0003)		0.1125 (0.1047)		.23
(4)	Interest on loans (SMSA)	4.7932	0.0097‡ (0.0052)	−0.0003 (0.0005)			0.0356* (0.0090)	.42
(5)	Interest on loans (SMSA)	4.67701	0.0115† (0.0056)	− 0.0004 (0.0005)	0.0029 (0.0035)		0.0331* (0.0095)	.43
(6)	Interest on loans (SMSA)	4.5738	0.0095‡ (0.0052)	−0.0008 (0.0007)		0.2203 (0.1919)	0.0376* (0.0091)	.44
(7)	Earnings Rate	1.0743	0.0043 (0.0026)					.07

Notes: Standard errors of the coefficients are in parenthesis.
* Significant at the 1 percent level.
† Significant at the 5 percent level.
‡ Significant at the 10 percent level.

variables, but at the cost of creating a multicollinearity problem. For example, equations 2 and 5 use as a proxy for demand "the percentage change in SMSA population from 1950 to 1960," which turns out to be as highly correlated with *concentration* as with the dependent variable.[41] Further analysis also indicates that the concentration coefficients behave erratically—a typical manifestation of multicollinearity.[42]

Alternatively, equations 3 and 6 use the variable "deposits per capita," which has also been used in other studies to represent demand.[43] Although this variable is not correlated with concentration, like the variable "change in SMSA population," it is nevertheless highly correlated with another explanatory variable: average size of bank.[44] Moreover, the concentration coefficients in equations 3 and 6 do not behave erratically, and they closely approximate the coefficients estimated by the equations without *any* demand variable (1 and 4). The implication is clear:

[41] Simple correlation of −.35 with concentration. See simple correlation matrices in Appendix B.

[42] The erratic movements are not severe but are nevertheless suspect. See Meyer and Glauber, *Investment Decision, Economic Forecasting, and Public Policy*, Boston, 1964, Chapter VIII; and Ta Chung Liu, "Under-identification, Structural Estimation and Forecasting," *Econometrica*, Vol., 28, No. 4 (October 1960).

[43] See Shull and Horvitz, *op. cit.*, December 1964. This variable, however, does not seem as appealing as the "change in population." Simple correlations between it and rates on time and savings deposits and rates on loans are only .26 and .10, less than those for the "population" demand variable. This statistic was used because it is highly correlated with income per capita, which should have some influence on either or both demand and supply. See Shull, "Competition in Banking: A New Old Problem," *Business Review*, Philadelphia Federal Reserve Bank, Jan. 1963; and Cohen and Kaufman, *op. cit.*

[44] Simple correlation of .54.

Table 7

Regressions on Unit Banking Metropolitan Areas, for Selected Performance Characteristics

Equation number	Performance characteristics	Constant term	Concentration: % of bank deposits in area held by the largest two banks	Proxy for bank costs: average size of bank	Proxy for demand: % change in population (1950—60)	Proxy for demand: % deposits per capita	Consumer-total loans	R^2
(1)	Interest on time deposits (SMSA)	3.04864	−0.0084† (0.0039)	0.0048 (0.0037)				.36
(2)	Interest on time deposits (SMSA)	2.71261	−0.0055 (0.0040)	0.0052 (0.0035)	0.0036‡ (0.0021)			.48
(3)	Interest on time deposits (SMSA)	3.09253	−0.0080‡ (0.0041)	0.0059 (0.0047)		−0.0652 (0.1528)		.41
(4)	Interest on loans (SMSA)	4.37921	0.0172† (0.0071)	−0.0034 (0.0061)			0.0449* (0.0133)	.69
(5)	Interest on loans (SMSA)	4.50467	0.0152‡ (0.0085)	−0.0037 (0.0064)	−0.0018 (0.0021)		0.0471* (0.0145)	.70
(6)	Interest on loans (SMSA)	4.38082	0.0186† (0.0069)			−0.0892 (0.2016)	0.0435* (0.0134)	.69
(7)	Earnings rate	0.9726	0.0076† (0.0032)					.25

Notes: Standard errors of the coefficients are in parenthesis.
* Significant at the 1 percent level.
† Significant at the 5 percent level.
‡ Significant at the 10 percent level.

Either regional demand is unimportant, or "deposits per capita" is a poor "proxy" for it. The latter is probably nearer to the truth.[45]

Thus, the evidence shows that concentration affects bank pricing in a manner compatible with the theory of monopolistic competition. Without a "good" measure of demand, however—one unrelated to concentration—more exact estimates of its effect are impossible.[46]

2. *Bank Output*

The ratio of loans to deposits, or of loans to assets, measures a bank's output relative to its size.[47] There are several factors which affect loan-deposit ratios. One is the size and type of bank. As shown in Table 4, large banks have higher loan-deposit ratios than small banks, and branch banks have higher ratios than unit banks.[48] Both large banks and branch

[45] Multicollinear conditions may not only prevent accurate estimates of "true" structural values, but may also lead us to reject incorrectly a "true" structural variable, since collinear conditions usually result in large standard errors for the coefficients. See Appendix C for an explanation of the existence of intercorrelation among these variables.

[46] Table 7 shows the same equations after all areas permitting branching are excluded. The results are roughly the same. Although the correlations between concentration and rates on time and savings deposits are somewhat weaker, the correlations between concentration and rates on loans are stronger. See also the simple correlation matrices in Appendix B.

[47] The correlation between the ratios of loans to deposits and of loans to assets is almost perfect, as would be expected.

For a critical discussion of this statistic, see *Branch Banking, Bank Mergers and the Public Interest*, New York State Banking Department, January 1964, pp. 414-415.

[48] Among metropolitan areas, the simple correlation between branch areas and loan-deposit ratios is .62.

banks have higher ratios because they are able to reduce their liquidity requirements by diversifying risks more widely. Second, a greater degree of competition may result in higher ratios because of an upward shift in a bank's "risk-taking" function. Third, the level of demand is likely to affect loan-deposit ratios, greater demand resulting in higher ratios. And, finally, like any other product or service, bank output is subject to some degree of price elasticity. Lower loan rates increase the amount demanded, which results in higher loan-deposit ratios, while higher rates result in lower ratios.[49] Since less competition leads to higher loan rates, we would, therefore, also expect concentration to have an adverse effect on bank output.

In order to estimate the influence of concentration on bank output, it is necessary to account for differences in bank organization (branch versus unit), in the demand for bank funds, and in bank size. But since the level of loan rates varies directly with concentration, an indirect test of the effect of concentration on output is to estimate the impact of loan rates on loan-deposit ratios, or the sensitivity of output to price differences.[50]

The importance of concentration can be seen in the regression equations for banks in St. Louis and Dallas, typical unit banking metropolitan areas. These estimates are not affected by differences in supply and demand because banks operating in the same city face roughly similar conditions. Further, by testing only unit areas, the influence of branching is also eliminated. "Bank size" is accounted for by a variable in the equations. The equations are:

St. Louis

$$\frac{\text{Loan}}{\text{Deposits}} = 73.97 + \underset{(0.01)}{0.01}\ (\text{Bank size}) - \underset{(1.36)}{4.07}\ (\text{Loan rate})$$

$$R^2 = .14$$
$$\text{d.f.} = 107$$

Dallas

$$\frac{\text{Loan}}{\text{Deposits}} = 86.63 + \underset{(0.008)}{0.001}\ (\text{Bank size}) - \underset{(1.26)}{4.81}\ (\text{Loan rate})$$

$$R^2 = .23$$
$$\text{d.f.} = 56$$

Both equations show that "bank size" is unimportant in comparison to "loan rates," which is significant at the 1 percent level. On the average, an increase of a percentage point in average loan rates decreases loan-deposit ratios by 4 percentage points. Thus, since high concentration results in high loan rates, and since these rates have a significant negative impact on loan-deposit ratios, high concentration also reduces bank output.[51]

[49] See Shull and Horvitz, *op. cit.*, December 1964, p. 163; and Bernard Shull, *op. cit., Banking and Monetary Studies*, 1963, p. 364-365.

[50] A direct test is impossible because of our inability to hold constant the many diverse influences. For example, among metropolitan areas the simple correlation between concentration and loan-deposit ratios is nearly zero. This may occur because of the following "neutralizing" factor: Since concentration is higher in branching markets, we would expect higher loan rates and consequently lower loan-deposit ratios. But we also know that branch banks usually have higher loan-deposit ratios for other reasons. Thus, these higher ratios tend to offset the adverse effect of higher loan rates. Moreover, the low rates on time and savings deposits in highly concentrated markets may reduce total deposits, also raising loan-deposit ratios.

[51] Bank size is measured by total deposits, and loan rates are average loan rates for each bank. The simple correlations among banks in these cities between loan-deposit ratios and different portfolio components are also generally low (e.g., .06). Moreover, it is likely that the bank size variable would pick up some of the portfolio effects. Large banks, for example, generally have more business loans but fewer consumer and real estate loans. It therefore seems unlikely that differences in banks' loan portfolios could account for the above findings. See Table 4.

Table 8

Relationship Between Bank Earnings and Concentration (With and Without Areas Permitting Statewide Branching)*

Concentration	Average earnings rate	
	All areas	Excluding statewide branching areas
Low: Range: 25-45% Average: 37%	1.23%	1.23%
Medium: Range: 48-65% Average: 56%	1.33	1.36
High: Range: 66-89% Average: 76%	1.39	1.41

* For only unit-banking metropolitan areas, the simple correlation between concentration and earnings rates is .51.

3. *Bank Profitability*

Bank profitability, which is measured as the ratio of net current earnings to assets, is perhaps the most difficult of all performance characteristics to explain. A bank's prices are only a partial explanation of its profitability. Its efficiency, size, loan-mix, deposit-mix, capital-deposit ratio, and type of organization are all important. For example, studies of bank costs have found that branch banks have higher costs than similar size unit banks, and that banking is subject to at least some economies of scale. Consequently, it is unlikely that a simple model can explain much of the variation in bank profitability. We nevertheless shall explore the association between concentration and bank profitability.

Table 8 shows that bank earnings rise as concentration increases. From the lowest to the highest concentration group there is a difference of 16 basis points, which amounts to a 13 percent rise in earnings. The evidence is far from conclusive, of course, since many factors may combine in a "coincidental" manner to bring about this result. Moreover, the coefficients estimated in equation 7 (shown in Tables 6 and 7) reveal a significant positive association between concentration and earnings *only* after all branching areas are excluded. This is not surprising, because variations among "other" factors tend to obscure an estimate for both branching and unit markets. Although it is not conclusive, this evidence establishes a refutable presumption that structure also affects bank profitability.[52]

Through what mechanism does structure affect bank profits? Shull and Horvitz find that profitability increases as loan rates rise, but falls as interest rates on time and savings deposits rise.[53] A regression based on all metropolitan areas in the sample yields:

$$\text{Earnings} = .4174 - .1382\ [\text{rate on savings deposits}] \quad (.1313)$$
$$+ .2002\ [\text{rate on loans}] \quad (.0632)$$
$$R^2 = .25$$
$$\text{d.f.} = 34$$

An increase in the average loan rate of 25 basis points increases earnings by 5 basis points, which is a 3 percent increase in earnings (using as a base the mean earnings: 1.37 percent). These estimates, therefore, support the conclusions reached by Shull and Horvitz and suggest that concentration may affect bank profitability through its effect on bank prices. Moreover, since high concentration re-

[52] The association shown in Table 8 cannot be explained as a "demand" phenomenon. For example, we might expect high earnings to be associated with high demand, but since highly concentrated markets are generally low-demand markets, the association between concentration and earnings is not the result of demand. Further, simple correlations between "percentage change in population" and "earnings" for all areas, and for only unit areas, are −.10 and .08, respectively; and between "deposits per capita" and "earnings" −.01 and −.09, respectively.

[53] *Op. cit.*, December 1964, pp. 172-173.

sults in high loan rates and low rates on time and savings deposits, the association between this "price-spread" and earnings is also of interest.[54] In fact, for unit areas and for all metropolitan areas the rank correlations between this "price-spread" and earnings are .66 and .59, indicating a significant association. Thus, high concentration may result in high profits because it permits banks to charge high loan rates while paying low rates for time and savings deposits. Both fact and theory therefore combine to support the hypothesis that structure also affects bank profitability.

V. *Summary and Conclusions*

Examining bank performance in 36 major metropolitan areas, we found that structural differences among these markets exert an important influence on bank performance. Market concentration, especially, was found to be significantly associated with the pricing, output, and profits of banks—high concentration being associated with high loan rates, low rates on time and savings deposits, and high profits. Contrary to the belief of many observers, therefore, structural changes in a banking market have an important impact on bank performance.

However, it is often argued that although structure has some effect on bank performance, its impact is too small to cause concern. For example, estimates of the effect that concentration has on bank prices indicate that, on the average, a 25 percentage point increase in concentration results in a 25 basis point rise in average loan rates and a 15 basis point decline in average rates on time and savings deposits.[55] How important are these changes?

With regard to total bank earnings and expenses in 1962, such interest rates changes would have raised bank earnings by $429 thousand and lowered bank expenses by $176 thousand, or nearly $600 thousand would have been shifted from the public to the banking industry. These estimates assume that bank output would have remained constant, but, as we know, higher loan rates would have reduced bank output. On the average, a 25 basis point increase in average loan rates would have lowered loan-deposit ratios by 1 percentage point, which would have resulted in nearly a $1.7 billion reduction in loans. Clearly, the importance of the impact of structure on bank performance depends upon our perspective.[56]

In previous studies the evidence has not always been as strikingly uniform. Controversy has arisen about the definition of variables and about the importance of regional supply and demand.[57] Such disagreement, of course, is inevita-

---

[54] The "price-spread" is defined as the difference between average loan rates and average rates on time and savings deposits. If banks have high output prices but low input prices, their profits should be greater.

[55] The range of concentration among the areas investigated is about 50 percentage points. With respect to metropolitan-area banking markets, of course, a 25 percentage point increase in concentration would be a "substantial" increase, although in smaller banking markets it may not be considered large. In any case, the real concern over bank mergers is that concentration will rise over the long term. A 25 percentage point change in concentration, therefore, is merely an analytical device to give some perspective to the influence of structure.

Moreover, the above estimates are no more than "educated guesses," since large standard errors due to multicollinearity preclude more precise estimates.

[56] These results assume a linear association between concentration and the various characteristics of bank performance. Although economic theory concludes that there should be *some* relationship between structure and performance, it does not specify *which* relationship. Little imagination is needed to think of other nonlinear relationships equally suitable *a priori*. I experimented with three nonlinear functions, which all seemed plausible: Y = reciprocal of x; y = log x; and log y = reciprocal of x. The linear function gave as good a fit as any.

[57] Theodore Flechsig, *op. cit.*, pp. 308-311.

ble because of the difficulty of testing alternative hypotheses. Confusion has also resulted from differences in opinion about the appropriate procedure for testing hypotheses. Despite these frustrations, the present study presents a strong case for the proposition that structure affects bank performance.

Appendix A

THE DATA

I. *The Sample*

The sample investigated consists of approximately 1400 banks located in 36 standard metropolitan areas, comprising all insured banks in these areas. The metropolitan areas range from small to very large and have a variety of banking structures. They were selected because of their availability and because they reflect the heterogeneous nature of banking markets.[1]

II. *The Problems Involved in Measuring Bank Performance*

Two measures of bank performance are relied upon to reflect bank prices: (1) average interest rates paid on time and savings deposits; and (2) average interest rates charged on loans. Both are "aggregate" measures because they are derived from totals taken from bank Reports of Condition and Income and Dividend Reports. For example, a bank's average rate on time and savings deposits is calculated by dividing the total amount it paid to depositors during the year by its total time and savings deposits at the end of the year. Income and expense totals reflect the entire year, while "condition" items (e.g., total loans) reflect only the last quarter of the year.

The use of "last quarter" totals instead of average balances for the year results in a downward bias in both measures. Since 1962 was a year of steady expansion, year-end figures for total loans and deposits are higher than their average balances would be. The resultant bias, however, is not serious unless certain markets (or banks) are more affected than others.

One circumstance in which serious distortion may occur is the comparison of "slow growth" with "high growth" markets. For example, the price measures will be more deflated in "high growth" areas than in "low growth" areas because year-end totals in "high growth" areas will be much greater than yearly average balances, while in "slow growth" areas year-end totals will deviate less from yearly average balances.

This bias between high and low growth areas may cause several results. First, since concentration is negatively associated with SMSA growth (−.35), the *positive* relationship between concentration and loan rates may appear stronger than it really is.[2] It is not clear, however, whether this association will become less significant, since the error terms will also change. Second, and for the same reasons, the *negative* relationship between concentration and rates on time and savings deposits may appear weaker than it really

[1] I am grateful to the Federal Reserve Board for making available data for both state member and insured nonmember banks.

[2] See Appendix C for an explanation of the relationship between SMSA growth and concentration.

is. Again, we are able to say nothing about what might happen to the statistical significance of the association. Thus, the data bias may cause the impact of concentration on bank pricing to appear stronger for one price measure but weaker for the other.

As an indication of the magnitude of this bias, average loan rates were calculated using *average yearly balances* for those metropolitan areas with the highest and lowest degrees of population growth.[3] The average loan rate for the SMSA having the highest rate of growth (125 percent) is biased downward by 10 basis points, while for the SMSA having the lowest rate of growth (−9 percent) the downward bias is only 5 basis points. Thus, the net bias is 5 basis points, surprisingly low. Moreover, since the negative association between population growth and concentration is far from perfect (−.35), much of the bias resulting from different growth rates will be distributed randomly, which further diminishes its importance.

Another problem which may cause some distortion is "window-dressing," although it is unlikely to cause a serious bias because it appears randomly. Nevertheless, to estimate its effect, all banks in Minneapolis-St. Paul were tested. Both measures of bank prices were derived, first, by using only year-end figures, and then by using "average yearly balances."[4] A rank correlation test indicated little difference between the two methods of measurement. Thus, "window-dressing" does not appear to have biased our results.

Another data problem is statewide branching. Statistics for branch banks represent the sum of all branch offices, regardless of location. To the extent that there are price variations among branch offices, therefore, some distortion may occur. Although "head office" policy may prevent substantial deviations from uniform pricing among branch offices, the above analysis was nevertheless done with statewide areas alternatively included and omitted in order to avoid this pitfall.

In addition to bank prices, bank profitability and bank output were also analyzed as: (1) the ratio of net current earnings to total assets; and, (2) the ratio of loans to deposits. These measures were derived from data sources similar to those above and also suffer similar shortcomings.[5]

Statistics for entire metropolitan areas, rather than individual banks, are taken from either standard sources, such as the Federal Reserve Bulletin, the Federal Deposit Insurance Corporation's *Annual Reports*, the *Statistical Abstract*, or are derived from individual bank data.

Despite the inaccuracy of these statistics, it is believed that the resultant biases are not serious enough to distort our conclusions.

[3] Average yearly balances are defined as the mean of the last quarter totals for 1961 and 1962.

[4] "Average yearly balances" are here defined as the mean of the first quarter and last quarter balances.

[5] For a good discussion of the problems involved in measuring bank performance, see Shull and Horvitz, "Branch Banking and the Structure of Competition," *op. cit.*, March 1964, pp. 145-155.

Appendix B

STATISTICAL TABLES

Table B-1

Performance Characteristics of Banks in Branch and Unit Markets, by Deposit Size, 1962
Metropolitan Areas with Population of Under 450 Thousand
(Means of Ratios of Individual Banks in Percentage Form)

Type of SMSA	Millions of dollars in deposits							
	Under 5	5–10	10–25	25–50	50–100	100–200	200–500	Over 500
Rate on loans and charges:								
Branch banks—Branch SMSA	6.68	6.61	6.38	6.21	5.99	5.61		
Unit banks—Branch SMSA	6.23	5.97	5.93					
Unit banks—Unit SMSA	7.2	6.8	6.6	5.8	5.9	5.3	4.9	
Rate on time and savings deposits:								
Branch banks—Branch SMSA	2.53	2.73	2.66	2.69	2.76	2.61		
Unit banks—Branch SMSA	2.51	2.74	2.74					
Unit banks—Unit SMSA	2.5	2.7	3.0	3.2	2.7	3.2	3.4	
Business to total loans:								
Branch banks—Branch SMSA	15.96	8.47	19.67	20.28	31.51	28.49		
Unit banks—Branch SMSA	15.19	16.76	24.60					
Unit banks—Unit SMSA	12.2	20.8	29.3	41.1	37.9	29.9	53.9	
Consumer to total loans:								
Branch banks—Branch SMSA	29.46	36.93	34.55	30.08	32.21	25.69		
Unit banks—Branch SMSA	25.99	23.28	15.37					
Unit banks—Unit SMSA	30.1	36.3	39.0	30.1	27.3	17.1	8.3	
Real estate to total loans:								
Branch banks—Branch SMSA	47.18	54.62	39.70	41.17	32.98	30.02	10.88	
Unit banks—Branch SMSA	54.37	55.21	48.80					
Unit banks—Unit SMSA	32.10	35.88	26.59	12.65	23.35	33.19	11.87	
Time to total deposits:								
Branch banks—Branch SMSA	54.69	50.12	50.70	50.95	38.07	36.00		
Unit banks—Branch SMSA	48.69	66.43	60.23					
Unit banks—Unit SMSA	41.6	43.7	44.2	35.0	33.6	21.4	19.6	
Demand deposits to total deposits:								
Branch banks—Branch SMSA	44.14	48.74	48.92	49.04	61.86	44.12	88.43	
Unit banks—Branch SMSA	45.65	33.06	39.26					
Unit banks—Unit SMSA	55.70	55.40	55.40	64.70	66.20	78.50	80.20	
Net current earnings to assets:								
Branch banks—Branch SMSA	.23	1.42	1.34	1.23	1.78	1.43		
Unit banks—Branch SMSA	1.40	1.21	1.39					
Unit banks—Unit SMSA	1.3	1.3	1.2	1.4	1.5	1.7	1.8	
Total loans to total deposits:								
Branch banks—Branch SMSA	54.07	51.76	59.10	50.51	57.97	60.33		
Unit banks—Branch SMSA	51.40	55.87	49.42					
Unit banks—Unit SMSA	41.3	40.0	45.5	54.9	47.4	50.6	46.9	
Number of banks:								
Branch banks—Branch SMSA	2	3	6	3	2	4	1	0
Unit banks—Branch SMSA	19	17	7	0	0	0	0	0
Unit banks—Unit SMSA	63	28	27	7	5	3	2	0

Table B-2

Performance Characteristics of Banks in Branch and Unit Markets, by Deposit Size, 1962
Metropolitan Areas with Population of From 450 to 1,400 Thousand
(Means of Ratios for Individual Banks in Percentage Form)

Type of SMSA	Millions of dollars in deposits							
	Under 5	5–10	10–25	25–50	50–100	100–200	200–500	Over 500
Rate on loans and charges:								
Branch banks—Branch SMSA	5.16	5.64	5.87	5.85	5.43	5.63	5.37	5.75
Unit banks—Branch SMSA	6.18	6.14	5.73	5.35	5.59			
Unit banks—Unit SMSA	7.4	6.9	6.2	5.9	5.4	5.4	5.0	5.0
Rate on time and savings deposits:								
Branch banks—Branch SMSA	2.12	2.62	2.71	2.91	2.81	2.73	2.73	3.12
Unit banks—Branch SMSA	2.54	2.75	2.73	3.19	2.89			
Unit banks—Unit SMSA	2.6	2.8	2.9	2.9	3.1	2.9	3.0	2.9
Business to total loans:								
Branch banks—Branch SMSA	26.87	12.94	22.14	24.70	16.93	25.01	34.37	35.02
Unit banks—Branch SMSA	14.87	15.08	21.17	12.62	23.75			
Unit banks—Unit SMSA	24.1	27.2	31.6	40.0	43.6	33.2	39.7	60.8
Consumer to total loans:								
Branch banks—Branch SMSA	39.37	32.34	25.21	24.12	25.01	30.93	21.65	18.95
Unit banks—Branch SMSA	25.71	22.09	24.90	22.16	23.31			
Unit banks—Unit SMSA	33.4	36.5	35.6	26.3	22.6	28.2	22.1	13.1
Real estate to total loans:								
Branch banks—Branch SMSA	20.00	43.16	45.34	33.20	46.18	34.82	25.04	28.08
Unit banks—Branch SMSA	52.46	50.67	47.85	50.13	43.33			
Unit banks—Unit SMSA	22.54	23.62	22.46	19.43	16.45	14.41	12.72	3.83
Time to total deposits:								
Branch banks—Branch SMSA	39.53	47.37	49.57	39.26	52.72	39.28	29.47	43.67
Unit banks—Branch SMSA	50.27	53.11	54.99	64.91	59.88			
Unit banks—Unit SMSA	34.8	39.6	41.4	38.7	31.1	33.2	26.7	25.3
Demand deposits to total deposits:								
Branch banks—Branch SMSA	58.14	51.77	50.15	60.60	40.12	60.50	69.12	56.32
Unit banks—Branch SMSA	45.91	46.27	44.74	35.09	47.22			
Unit banks—Unit SMSA	63.30	59.70	58.20	61.00	68.70	66.70	73.20	74.50
Net current earnings to assets:								
Branch banks—Branch SMSA	.98	.90	1.08	1.02	1.08	1.37	1.89	1.53
Unit banks—Branch SMSA	1.26	1.20	1.13	.90	1.25			
Unit banks—Unit SMSA	1.5	1.4	1.2	1.3	1.4	1.4	1.8	2.1
Total loans to total deposits:								
Branch banks—Branch SMSA	74.42	55.56	49.68	54.05	54.47	52.93	56.42	57.81
Unit banks—Branch SMSA	49.77	48.25	49.09	67.61	54.91			
Unit banks—Unit SMSA	50.0	46.3	48.2	52.0	48.4	49.3	50.7	53.8
Number of banks:								
Branch banks—Branch SMSA	1	14	31	9	10	11	10	5
Unit banks—Unit SMSA	43	21	30	2	2	0	0	0
Unit banks—Unit SMSA	78	112	131	34	15	14	13	3

Table B-3

Performance Characteristics of Banks in Branch and Unit Markets, by Deposit Size, 1962
Metropolitan Areas with Population of Over 1,400 Thousand
(Means of Ratios of Individual Banks in Percentage Form)

Type of SMSA	Millions of dollars in deposits							
	Under 5	5–10	10–25	25–50	50–100	100–200	200–500	Over 500
Rate on loans and charges:								
Branch banks—Branch SMSA	7.66	6.11	5.93	5.93	5.69	5.78	5.54	5.40
Unit banks—Branch SMSA	6.12	5.80	5.75	5.42	6.14	5.76	5.49	
Unit banks—Unit SMSA	6.2	6.1	5.7	5.7	5.4	5.3	4.8	4.9
Rate on time and savings deposits:								
Branch banks—Branch SMSA	2.78	2.48	2.58	2.64	2.85	2.88	3.02	3.12
Unit banks—Branch SMSA	2.67	2.72	2.78	2.79	3.32	3.20	2.41	
Unit banks—Unit SMSA	2.4	2.5	2.7	2.9	3.0	2.8	2.6	2.8
Business to total loans:								
Branch banks—Branch SMSA	19.83	17.40	23.57	23.71	27.99	28.06	30.67	38.52
Unit banks—Branch SMSA	15.39	20.58	21.17	29.58	27.50	50.58	38.92	
Unit banks—Unit SMSA	11.6	14.7	17.0	20.4	28.9	26.2	35.4	44.4
Consumer to total loans:								
Branch banks—Branch SMSA	22.93	26.50	27.94	24.64	23.29	25.31	25.12	18.30
Unit banks—Branch SMSA	23.10	23.45	19.61	15.84	12.67	25.48	19.84	
Unit banks—Unit SMSA	22.7	25.7	26.4	27.1	24.0	27.0	30.0	19.6
Real estate to total loans:								
Branch banks—Branch SMSA	40.88	45.80	40.01	39.49	34.48	34.25	30.30	21.55
Unit banks—Branch SMSA	49.75	47.68	47.51	45.00	50.47	19.48	37.30	
Unit banks—Unit SMSA	45.65	46.44	46.84	41.16	26.89	26.87	16.04	17.68
Time to total deposits:								
Branch banks—Branch SMSA	48.66	47.37	43.99	40.10	45.97	39.94	41.16	32.93
Unit banks—Branch SMSA	51.81	50.09	48.27	49.00	49.77	53.35	58.60	
Unit banks—Unit SMSA	47.8	48.4	49.2	49.6	45.6	42.5	29.6	36.0
Demand deposits to total deposits:								
Branch banks—Branch SMSA	49.61	51.89	54.97	59.75	53.96	60.02	61.32	67.06
Unit banks—Branch SMSA	46.12	48.59	51.04	42.41	50.11	46.59	41.37	
Unit banks—Unit SMSA	50.2	50.7	50.5	50.1	54.3	57.3	70.3	63.9
Net current earnings to assets:								
Branch banks—Branch SMSA	1.67	1.20	1.17	1.35	1.20	1.46	1.37	1.74
Unit banks—Branch SMSA	1.22	1.19	1.26	1.07	1.17	1.91	1.09	
Unit banks—Unit SMSA	1.1	1.0	1.0	.9	1.0	1.1	1.6	1.4
Total loans to total deposits								
Branch banks—Branch SMSA	53.90	52.92	50.87	52.75	56.41	53.38	53.86	55.53
Unit banks—Branch SMSA	55.37	50.49	48.33	55.86	48.07	56.87	57.21	
Unit banks—Unit SMSA	45.1	44.0	44.0	44.8	47.0	47.2	51.7	50.4
Number of banks:								
Branch banks—Branch SMSA	11	25	54	26	15	17	12	17
Unit banks—Branch SMSA	37	44	32	7	1	1	1	0
Unit banks—Unit SMSA	82	89	123	67	24	9	3	7

Variables in Regression Equations

X1 = Average interest rate paid on time and savings deposits (SMSA);

X2 = Average interest rate charged on loans (SMSA);

X3 = Average earnings rate, net current earnings to earnings assets, (SMSA);

X4 = Concentration: percent of total commercial bank deposits held by the largest two banks (SMSA);

X5 = Proxy for banks costs: average size of bank in SMSA;

X6 = Proxy for demand: percentage change in population, 1950-1960 (SMSA);

X7 = Proxy for demand: deposits per capita in SMSA;

X8 = Ratio of consumer-total loans.

Table B-4

Simple Correlation Matrix
(For all 36 Metropolitan Areas)

	X1	X2	X3	X4	X5	X6	X7	X8
X1	1	.05	−.14	−.33	.26	.37	.26	−.16
X2		1	.47	.26	−.22	.18	.10	.59
X3			1	.27	−.23	.08	−.01	.57
X4				1	.13	−.35	.12	.03
X5					1	−.08	.54	−.30
X6						1	−.01	.28
X7							1	−.01
X8								1

Table B-5

Simple Correlation Matrix
(For only Unit Banking Metropolitan Areas)

	X1	X2	X3	X4	X5	X6	X7	X8
X1	1	−.23	.09	−.54	.40	.51	.07	.06
X2		1	.71	.66	−.22	−.18	−.11	.73
X3			1	.51	−.16	−.12	−.09	.44
X4				1	−.28	−.41	.02	.42
X5					1	.05	.55	−.03
X6						1	−.28	.10
X7							1	−.01
X8								1

Appendix C

THE RELATIONSHIP BETWEEN STRUCTURE AND DEMAND: OR CONCENTRATION AND SMSA GROWTH

Multicollinearity has plagued the foregoing analysis. If it were not for this problem, it would be relatively simple to determine which factors exert what influence on bank performance. More specifically, intercorrelations between concentration and the proxy variables for demand have prevented precise estimates of structural parameters. This problem is not unique and probably arises in most studies like this one.

Changes in the concentration of banking markets are brought about through the entry and exit of banks from the market, and through mergers and consolidations among banks. Both activities are controlled to a large extent by regulatory authorities.[1] To establish a new bank one must obtain a charter from the appropriate regulatory authority; mergers are also subject to regulatory approval. Thus, regulatory policy is bound to have some effect on market concentration.

Mergers are usually greatest during periods of economic recession. During the early thirties mergers and consolidations ran to nearly 800 in one year. This is not surprising, since regulatory authorities have been favorably disposed to mergers when banks were having financial difficulty. Banking authorities have generally attempted to match banking facilities with "community needs,"[2] while at the same time maintaining the solvency of the banking system. Thus, during periods of slack economic activity, or in depressed areas, a liberal merger policy accomplishes both objectives: It reduces the number of banks in conformance to reduced "community need," and it prevents a high rate of failure by permitting strong banks to absorb weaker banks. Since mergers reduce the number of banks, therefore, there is a bias towards increasing concentration during periods of economic depression (and in areas with depressed economic conditions).[3]

This bias is further strengthened by regulatory disposition to charter more banks during prosperous times or in prosperous markets.[4] The "charter" test considers a bank's "future earnings prospects," its effect on existing banks, and the "adequacy" of existing banking facilities and services. It is obvious that the test is more likely to be met in fast-growing markets. When future prospects are

---

[1] Bank failures are relatively unimportant, since there have been few. From 1946 to 1960, there were about 3 a year. During 1934 alone, however, there were about 52 of them. As expected, failures are greater during periods of depressed economic activity. See *Annual Reports*, Federal Deposit Insurance Corporation.

[2] See *Bank Merger Act*, Federal Deposit Insurance Act, Sec. 18(c).

[3] See George Hall and Charles Phillips, Jr., *Bank Mergers and the Regulatory Agencies*, Federal Reserve Board, 1964, p. 134: "by contrast, well over a third of all bank merger applications have involved at least one bank with managerial or other internal difficulties." This statement was made solely on the basis of the 1960-62 applications and would appear to be even more true during periods of depressed economic activity.

[4] See David Motter, "Bank Formation and the Public Interest," *The National Banking Review*, 2, March 1965, p. 301.

bright, moreover, applications for bank charters are higher, since risks are lower. The combination of more charter applications and the regulatory chartering criteria tends to result in more banks entering fast-growing markets.[5] Thus, the number of banks increases more in prosperous markets because a greater number of banks enter these markets while more either fail or are absorbed in markets that are depressed. Over a considerable period of time, therefore, depressed or slow growth markets are likely to become relatively concentrated.[6]

To test this hypothesis, unit banking states were examined for the period 1953-1962. The number of banks chartered minus the number of mergers during these years was taken as a proportion of total banks in each state as of 1953. The ratio was found to be highly correlated with the growth of state populations during the same period (rank correlation of .59, significant at the 1 percent level). In states with rapid growth, or high demand, therefore, more banks entered the market than left it, which increased the number of banks and reduced concentration.[7] Since states may not be appropriate markets within which to test the above hypothesis, another test was made for metropolitan areas. Changes in the level of concentration in 15 major unit banking metropolitan areas were found to be negatively associated with the growth of these areas (rank correlation coefficient of −.63, significant at the 1 percent level).[8] Thus, regulatory policy may strengthen the tendency of high demand to produce low concentration and of low demand to produce high concentration.

From a statistical viewpoint, this bias shows up as significant intercorrelation between concentration and the usual proxy variables for demand. Unless we are able to find a demand variable which is not associated with concentration, attempts to separate the effect of one from the other must be accepted as tentative in the sense that better estimates must await either better data or improved statistical techniques.[9]

---

[5] The statistics on new banks may not provide a decisive case for this argument when looked at over a long period, since regulatory agencies may not follow consistent policies. For a shorter period, the case is more decisive. For example, the number of banks chartered in unit banking states between 1953 and 1962 as a proportion of total banks in each state is highly correlated with the growth in population. (Rank correlation of .47, significant at the 5% level.) Where branching is permitted, of course, there may be *de novo* branches instead of new banks.

[6] The implicit assumption is that generally high demand is associated with rapid growth, and low demand with slow growth or a declining economy. Indeed, it is difficult to conceive of the converse being true.

[7] The simple correlation between concentration and the number of banks in unit banking metropolitan areas is −.34. See Shull and Horvitz, *op. cit.*, March 1964, p. 316, for a discussion of states which permit branching.

[8] See Table C-1 below.

[9] It may be possible to obtain better structural estimates by using "constrained regression estimation."

Table C-1

Association Between Changes in Concentration and Changes in Population, for Selected Metropolitan Areas

Metropolitan area	Percentage of all deposits in the largest five banks or bank group		Change in concentration	Change in SMSA population
	Dec. 31, 1920	Dec. 31, 1958	1920–1958	1920–1960
15. Metropolitan areas in States with unit banking prevalent				
Chicago: Cook County, Illinois	39.9%	59.1%	19%	31%
Dallas: Dallas County, Texas	84.3	87.8	4	327
Denver: Denver County, Colorado	70.0	80.9	11	92
Fort Worth: Tarrant County, Texas	77.4	87.3	10	234
Houston: Harris County, Texas	83.0	75.6	−7	578
Jacksonville: Duval County, Florida	93.0	95.4	2	119
Kansas City: Clay and Jackson Counties, Missouri	53.7	73.9	20	46
Miami: Dade County, Florida	90.7	55.1	−36	885
Milwaukee: Milwaukee County, Wisconsin	73.5	77.0	4	62
Minneapolis—St. Paul: Hennepin and Ramsey Counties, Minnesota	60.0	92.2	32	27
Oklahoma City: Oklahoma County, Oklahoma	68.6	83.3	15	255
Omaha: Douglas County, Nebraska	71.6	94.5	23	57
St. Louis: St. Louis City and St. Louis County, Missouri	59.2	63.6	4	−03
San Antonio: Bexar County, Texas	63.2	78.7	16	264
Tampa—St. Petersburg: Hillsborough and Penellas Counties, Florida	66.0	57.8	−8	236

Sources: Federal Deposit Insurance Corporation, **Annual Report,** 1960, pp. 56–57; U. S. Department of Commerce, **Statistical Abstract of the United States,** 1961, pp. 24–25.

►RICHARD R. WEST

Should Commercial Banks Be Allowed to Underwrite Municipal Revenue Bonds?

I. *Introduction*

Since the passage of the Glass-Steagall Banking Act of 1933, the authority of commercial banks to underwrite, distribute, or deal in securities has been limited to obligations of the United States, issues of certain Federal agencies, and *general* obligations of states and municipalities.[1] Recently, however, bills have been introduced to amend the Glass-Steagall Act[2] to permit banks to underwrite municipal *revenue* bonds as well.[3] Although these have not been the first bills with this aim (similar pieces of legislation date back to 1956),[4] they have generated substantially more attention than most of their predecessors.[5] One reason for this

Richard R. West is Assistant Professor of Finance, Cornell University, Graduate School of Business and Public Administration. The author would like to thank A. Miller Hillhouse for valuable assistance in the preparation of this paper. Much of the research for this paper was undertaken while the author was a research fellow at the Federal Reserve Bank of Chicago. Naturally, neither the bank nor the several members of its research staff with whom he had numerous helpful discussions necessarily concurs with the conclusions drawn.

[1] See 48 Stat. 162, 184-5, 189.

[2] The most recent bill is H.R. 5845 introduced in the 88th Congress.

[3] State and local government bonds not backed by a full faith and credit provision are frequently referred to collectively as municipal revenue bonds.

[4] S. 2290, S. 2713, H.R. 8622, 84th Cong., 1st Sess.

[5] See, for example, *The Wall Street Journal*, April 27, 1965, p. 15; *The Bond Buyer*, May 10, 1965, p. 2, and p. 6; Paul Horvitz, "Stimulating Bank Competition Through Regulatory Action," *The Journal of Finance*, XX (March, 1965), pp. 11-12.

increased attention has been the persistent rise in the importance of the revenue bond market itself. Another has been that the chief spokesmen of the two Federal agencies most concerned with regulating banks have publicly disagreed over the merits of these bills: James J. Saxon, the Comptroller of the Currency, has stated repeatedly that he is in favor of amending the Glass-Steagall Act to allow banks to underwrite revenue obligations, while Federal Reserve Board Chairman William McChesney Martin has made known his opposition to altering the status quo on several occasions.[6]

There are many aspects to the controversy over permitting banks to underwrite and deal in municipal revenue bonds. However, the main issues seem to be the following:

> Will the infusion of bank underwriters lead to interest cost savings for states and municipalities?
>
> Will permitting banks to underwrite revenue issues ultimately tend toward undesirable concentration in the hands of a few large banks?
>
> Are there inherent conflicts of interest involved in further combining commercial and investment banking activities?

This paper examines the major arguments on both sides of these issues, relying primarily on recent Congressional testimony for representative statements of the various points of view. The following section is devoted to a brief description of the background of and the participants in the current controversy. Section III presents a discussion of the relationship between increased underwriting competition for revenue issues and the cost of credit to states and municipalities. The fourth section considers the allegation that permitting banks to undertake additional underwriting activities would lead to an undue concentration of economic power and undesirable conflicts of interest. Finally, in Section V, the arguments are briefly summarized and some conclusions drawn.

II. *The Background*

On the eve of the Great Depression, commercial banks were at the pinnacle of their power and influence in securities underwriting. Figures submitted to the Senate Banking Committee in 1931 by Charles E. Mitchell, president of New York's National City Bank, show, for example, that between 1927 and 1930 the origination of security issues by banks increased from around 22 percent to more than 44 percent of total originations, and that during the same period their share in participations increased from 37 percent to nearly 62 percent of all securities offered to the public.[7]

This influence, however, was not destined to continue. With the depression came a spate of bank suspensions which culminated in a series of now famous Congressional hearings on the operation of the banking system and the workings of the securities markets.[8] Among other things, these hearings led many congressmen, senators, bankers, and economists to conclude that underwriting activities of commercial banks played a significant role in the development of the speculative excesses of the late twenties and in the

[6] See, for example, their statements in *Increased Flexibility for Financial Institutions*, Hearing before the House Banking and Currency Committee, House of Representatives, 88th Cong., 1st Sess., 1963, (hereafter referred to as 88th Cong. Hearings).

[7] Hearings before a Subcommittee of the Committee on Banking and Currency, U.S. Senate, 71st Congress, 3rd Sess., pursuant to S. Res. 71, p. 299.

[8] In addition to Hearings, *supra* note 5, Hearings before the Senate Committee on Banking and Currency, 72nd Cong., 1st and 2nd Sess., pursuant to S. Res. 84; Hearings before the Senate Committee on Banking and Currency, 73rd Cong., 1st and 2nd Sess., pursuant to S. Res. 56 and 97.

plethora of bank failures that followed. After much Congressional debate (devoted primarily to the question of whether bank underwriting activities should be completely abolished or merely supervised and regulated), the Glass-Steagall Act was passed, stripping banks of the power to underwrite virtually all types of securities other than obligations of the Federal government and general obligations of states and municipalities.

Since 1933, there have been no significant changes in the general categories of securities which commercial banks are permitted to underwrite.[9] However, within those areas left open to them, and particularly in the market for general obligation municipals, banks have continued to play an important and often dominant role. Recently, for example, they have been the managing underwriters of more than 50 percent of the dollar volume of new general obligations offered to the public.[10]

For some time now, banks have been showing increased interest in obtaining an authorization to underwrite municipal revenue bonds. The principal reason for this development is, of course, quite simple: In the postwar period an increasing proportion of municipal borrowing has been done through revenue bond financing and, consequently, bank underwriting activities have not been growing as rapidly as the municipal bond market as a whole. Moreover, as banks look into the future, they see even greater expansion in the area of revenue financing and, quite understandably, they would like to be a part of this expansion.

Private investment bankers, of course, are just as intent on maintaining the status quo. They remember only too well how bank underwriters expanded their activities prior to the passage of the Glass-Steagall Act, and regard the current proposals to permit banks to underwrite revenue bonds as but the first in a series of measures which would spell the return of those "bad old days."

And thus the issue is joined. On the one side are the commercial bankers, backed by the Office of the Comptroller of the Currency and numerous state and local governments;[11] on the other, the private investment bankers who draw their principal support from the Federal Reserve System.

But, what are they arguing over? What issues do they emphasize, and how do they counter each other's claims? Some answers to these and other questions can be found in hearings held by the House Banking and Currency Committee in the Fall of 1963; and it is to these hearings that we now turn.

III. *Competition and Interest Cost Reductions*

A. Competition is a Powerful Force

Those who argue that commercial banks should be permitted to underwrite and deal in municipal revenue bonds usually defend their position on the ground that this development would reduce the debt-servicing costs of state and local governments. The infusion of bank underwriters, they argue, would make the bidding competition for new revenue offerings more intense, with the result that issuers would receive higher prices for their bonds. Numerous examples of this general argument can be found in the 1963 *Hearings*, including the following:

Comptroller Saxon: "Ending the current restriction on revenue bond financing [by

[9] Over the years, several new forms of securities of Federal and international agencies have been added to the legal list, including: obligations insured by the Federal Housing Administrator, issues of National Mortgage Associations, and World Bank Bonds.

[10] See 88th Cong. Hearings, statement of James J. Saxon, p. 12.

[11] For a list of the state municipal leagues that support legislation to permit banks to underwrite municipal revenue bonds, see *Ibid.*, p. 896.

commercial banks] will increase the competition in the bidding for and the distribution of revenue bonds, and competition is a powerful force making for lower prices to consumers." (p. 12)

Senator Joseph S. Clark: "[The increased competition] will help bring down the overhead on revenue bond financing and afford some relief to the financially hard-pressed state and local governments." (p. 333)

Mr. Delmont K. Pfeffer (Senior Vice President, First National City Bank of New York): "As the number of bidders increases, the intensity of competition likewise will rise; and this will result in lower interest costs on public improvements." (p. 446)

In addition, proponents of this position claim that further cost savings would result from *broadening* the market for revenue bonds. They argue that allowing banks to take dealer positions in these issues would encourage many investors, including the banks themselves, to put more funds in revenue obligations, thereby increasing demand, raising prices, and lowering yields. Turning again to the 1963 *Hearings*, we frequently find statements to this effect, for example:

Comptroller Saxon: "Throughout the country, investors, who rely on their bank for information concerning tax-exempt securities, would become more willing to invest in sound revenue bonds." (p. 13)

Mr. Alan K. Browne (Vice President, Bank of America): "Some bank investment managers have been reluctant to buy municipal revenue bonds because they can't trade them. . . . Authority to deal in municipal revenue bonds will provide portfolio managers with more flexibility in their market transactions. . . ." (p. 440)

B. Competition is Already Intense

In answer to these arguments, opponents of extended bank underwriting activities take the position that competition among underwriters of revenue bonds is already intense, and that an increase in the number of bidders would have little, if any, effect on the costs of municipal financing. The following representative statements from the 1963 *Hearings* aptly illustrate their stand:

Chairman Martin: ". . . (T)here is not much latitude for competitive reductions in interest costs between revenue and general obligation bonds of similar quality." (p. 95)

Professor Bertrand Fox (Harvard Business School): ". . . (T)he additional competition of bidding groups which would result if commercial bankers were permitted to underwrite revenue bonds would have a minimal effect on the cost of money to the issuers of such bonds and is not required to provide effective bidding competition for such issues." (p. 737)

Mr. Amyas Ames (President of the Investment Bankers' Association): "The supporters of HR 5845 [a bill to allow commercial banks to underwrite revenue bonds] assert that if commercial banks were permitted to participate in revenue bond financing the interest rate that the municipalities and the States must pay would be lower and that more public improvements which are financed in this way would be possible. This assertion cannot be proved because it is wrong." (p. 522)

The argument underlying statements such as these is that, despite assertions to the contrary, the infusion of bank underwriting competition could not, by itself, increase the prices at which new issues are retailed (i.e., could not increase the demand for new issues) and would therefore only reduce the costs of municipal credit by lowering underwriters' spreads. But spreads, it is said, are already so small that no appreciable reductions could take place. For example, Professor Bertrand Fox made the following remarks before the House Committee:

The average spread in recent months on revenue bonds rated A by Moody's, which had an average life of about 19 years, is about 1.2% of par value. This contemplated spread in terms of the cost of money to the issuer is around seven-hundredths of 1% per year. Any differences in spread contemplated by the second highest as compared with the

winning bidder is only a fraction of this seven hundredths of 1% per year. This is the range of possible improvement of interest rates to issuers, which might result in some instances from permitting commercial bankers to underwrite and deal in these bonds. (p. 722)

C. The Episode with Georgia Highway Authority Bonds

Those who claim that the costs of revenue financing would be significantly cut by allowing banks into the market argue, however, that the drop in yields on Georgia Highway Authority bonds (following a ruling by the Comptroller of Currency that these issues could be underwritten by commercial banks for the first time) refutes Professor Fox's position. In particular, they note, for example, that "an issue of Georgia Highway Authority bonds, which was selling at a yield of 3.30 percent on the Friday before the ruling, rose in price so that its yield on the following Friday was down to 3.15 percent."[12]

Behavior such as this, however, does not support the argument that relaxing current restrictions on bank underwriting activities would reduce yields on revenue issues. Between the two Fridays referred to above (October 12 and 19, 1962) prices in the municipal bond market, and indeed in many parts of the money and capital markets, rose abruptly in response to the news that the Federal Reserve had authorized a one percentage point cut in reserve requirements held against time deposits at commercial banks.[13] The announcement of the impending cut reached the market late Thursday afternoon, October 18, and "by Friday morning [municipal] bonds were being withdrawn from the market, others were being marked up anywhere from 5 to 20 basis points and there was retail business going on at prices equivalent to 5 to 10 basis lower yields from the day before."[14] According to one seasoned observer of the municipal bond scene, the market was "more active than in any time in recent history," and prices were carried "to a new high since the 1958 period."[15]

But, even if the change in yields on Georgia bonds occurred before Thursday's market break, it is not clear that it would be correct to conclude that the reduction resulted primarily from allowing commercial banks to underwrite these issues. Around the time of the Comptroller's rulings, there was considerable doubt about the status of Georgia Highway Authority bonds. Standard and Poor's took the position that the bonds were general obligations because of a 1960 Georgia constitutional amendment that "in effect obligated the legislature to appropriate sums sufficient to satisfy the payments required under lease contracts of the highway authority."[16] Moody's however, stated that "the 1960 amendment merely mandated the legislature to make lease payments" and concluded, therefore, that the state's involvement did not "extend to an unqualified promise to pay the bonds themselves."[17]

To add to the confusion, the Attorney General of Georgia and the Federal Reserve Bank of Atlanta, on the one hand, and the Office of the Comptroller of the Currency, on the other, took opposite sides on the status of these bonds. The Attorney General had ruled that the

---

[12] *Ibid.*, statement of James J. Saxon, p. 13. This argument can also be found in the statement of Ralph S. Locher, p. 897; and in Paul Horvitz, "Stimulating Bank Competition Through Regulatory Action," *The Journal of Finance*, XX (March, 1965), pp. 11-12.

[13] Moody's index of yields on U.S. Treasury bonds, for example, dropped 9 basis points between October 15 and 19.

[14] *The Weekly Bond Buyer*, October 22, 1962, Section 1, p. 33.

[15] Donald D. Mackey, *The Commercial and Financial Chronicle*, October 25, 1962, p. 5.

[16] Reported in *The Weekly Bond Buyer*, October 22, 1962, Section 1, p. 4.

[17] *Moody's Bond Survey*, October 29, 1962, p. 296.

bonds were in fact general obligations, and his opinion was reaffirmed by examiners of the Atlanta Federal Reserve District.[18] The Comptroller's Office, however, "was on record [prior to October 15] as ruling these securities were not general obligations of the state."[19]

Then came the Comptroller's statement of October 15 which he and others believe caused the subsequent fall in yields on Georgia Highway Authority bonds by increasing the *underwriting competition for these issues.* An equally plausible explanation of the change, however, can be made along the following general lines. In view of the confusion about the status of Georgia issues prior to the Comptroller's ruling, there were probably many investors who doubted that the bonds were general obligations—in fact, Mr. Saxon's own stand, which was at odds with that of the Attorney General and the Atlanta Bank, could have been a primary contributor to such doubts. However, by reversing his position on October 15th, and thereby becoming the third governmental official to put the general obligation stamp on the Georgia bonds, the Comptroller may have convinced a great many investors that their doubts were unfounded. If so, these investors presumably would have been willing to pay somewhat higher prices thereafter for Georgia issues. And this development, rather than the increased underwriting competition for new Georgia bonds, could have caused the fall in yields on the outstanding issues.

IV. *Commercial and Investment Banking—A Conflict of Interests?*

For the most part, those who oppose altering the status quo have rarely questioned evidence such as that provided by the Georgia Highway Authority case. Instead, they have endeavored to put advocates of extended bank underwriting powers on the defensive. They argue that even if increased bidding-competition could reduce interest costs to municipalities and states, it would still be necessary, in determining what is in the public interest, to weigh these reductions against "the inevitable concentration of economic power and the abuses which in the past have proven to be inherent in combining the banking and securities businesses."

A. Concentration and Interest Cost Savings

They argue that permitting commercial banks to underwrite revenue bonds would ultimately reduce competition for revenue issues by concentrating power in the hands of a small group of powerful banks. And this development, they say, would mean higher interest costs for states and municipalities in the long run. Their position is reflected in statements such as the following:

Mr. C. Cleever Hardwick: ". . . [Allowing commercial banks to underwrite revenue bonds] would undoubtedly lessen, not increase, the present healthy and effective competition that exists among the Nation's independent securities dealers; it would tend toward the undue concentration of economic power in this area in a few large banks. . . ." (p. 675)

Mr. Amyas Ames: "The proposed amendment [HR 5845] is likely to raise interest costs for issuers of municipal revenue bonds because, if the tendency to monopoly on the part of the big-city bank security departments is allowed to extend to a wider area, the number of investment banking firms able to stay in business will be reduced. . . ." (p. 523)

It is extremely difficult to reconcile statements such as these with the frequently heard argument that the infusion of bank underwriting competition would have little, if any, effect on the costs of municipal financing. Revenue bond underwriting

[18] *The Weekly Bond Buyer,* October 22, 1962, Section 22, p. 4.
[19] *Ibid.,* Section 22, p. 4.

could become concentrated in the hands of a small group of commercial banks only if they *systematically* offered higher prices for new issues, and this of course would mean lower interest costs for states and municipalities. Moreover, even after they obtained a commanding share of the revenue underwriting business, these banks would presumably find it necessary to continue bidding aggressively against other bank and nonbank underwriters to maintain their position,[20] and this too would spell lower costs for issuers of municipal revenue bonds.

B. Would Bank-Underwriting Function to Influence Commercial Banking Activities?

But, what about the charge that there are conflicts of interest inherent in combining commercial and investment banking activities? What are these conflicts, and why are they seen by many as the most undesirable consequences of allowing commercial banks to underwrite revenue bonds? For answers to these questions, we turn again to statements contained in the 1963 *Hearings*:[21]

Chairman Martin: "It is said that many of the unique functions of commercial banks inevitably would be less effectively performed if banks were permitted to expand their underwriting activities. . . . (I)f a particular underwriting proved to be 'sticky,' a bank might take the securities into its investment portfolio rather than liquidate them at a loss. . . . It is said that there would be a conflict between their fiduciary and underwriting functions. Likewise, it has been asserted that the advice and guidance given to correspondent banks and other customers by large metropolitan banks would be affected adversely by wider participation of such banks in underwriting, since it would be difficult for a bank to maintain the position of an impartial advisor when deciding whether to recommend the purchase of securities in which the advising bank itself held a position as underwriter or dealer." (p. 93)

Mr. Amyas Ames: ". . . (T)he idea embodied in HR 5845 [a bill to allow commercial banks to underwrite revenue bonds] is wrong in principle and it opens up danger of conflict of interest." (p. 524)

Mr. C. Cleever Hardwick (Smith, Barney & Co.): "As an underwriter a bank interest is to dispose of its participation as quickly as possible. In order to demonstrate its confidence in the issue to other prospective investors, to help give the offering the all important tone of being a success, and to avoid showing an immediate underwriting loss, the bank may feel constrained to buy for its own portfolio substantial amounts of such securities which it would not otherwise purchase. (p. 690) . . . As a trustee, there is no doubt today that a bank has the moral as well as the legal duty to avoid sell-dealing. . . . Even this limitation, however, does not avoid a severe conflict-of-interest problem in many if not most cases." (p. 690-691)

Unfortunately, the economic analysis underlying these arguments leaves much to be desired. To illustrate this point, it is necessary only to analyze Chairman Martin's assertion that, "if a particular investment proved to be 'sticky' a bank would take the securities into its investment portfolio rather than liquidate them at a loss." The implication is clearly that banks can somehow eliminate, or at least lessen, the losses involved in "sticky" issues by making the bookkeeping entries necessary to transfer securities from their bond departments to their portfolio accounts. A bank's mistakes, however, can no more be eliminated by making internal transactions than can a child make money by selling lemonade to himself. And yet,

[20] For some evidence on the extent to which small underwriters pose a threat to large commercial banks, see the author's, "New Issue Concessions on Municipal Bonds: A Case of Monopsony Pricing," *Journal of Business*, April, 1965; and "Bidding Competition for Municipal Bonds; The William Morris Episode," *Financial Analysts Journal;* July-August, 1965.

[21] 88th Cong. Hearings.

the argument that bank investment policies would be perverted in support of underwriting operations assumes either that banks are unaware of this economic fact of life or, for reasons known only to them and Chairman Martin, that they prefer to have the mistakes of their bond departments accounted for by other bank operations.

The logic underlying the argument that extending bank underwriting powers would lead to a deterioration in the quality of investment advice given to correspondents and customers is no more sound. As Comptroller Saxon told the House Committee in 1963: "A bank that consistently recommends inferior securities to its customers will inevitably find itself losing correspondents and their deposit accounts to banks which provide better service." This argument, of course, applies with equal force to the matter of investment advice to depositors.

But, wouldn't banks attempt to pawn-off "sticky" issues on trust accounts? Those who advocate allowing banks to underwrite revenue bonds say, "absolutely not," for at least two reasons. First, they point out that competition for trust business, like that for customers and correspondents, puts pressure on banks to carry out their fiduciary responsibilities. In addition, they note that it is illegal for banks to use fiduciary funds to purchase property or obligations owned by them, and that this provision is supposedly enforced by the Comptroller's Office irrespective of the intrinsic qualities of the property or obligations involved.[22]

C. The Specter of 1933

Opponents of extended bank underwriting powers find their most effective defense of the status quo in the "specter of 1933." In answer to arguments that banks are too rational to allow underwriting decisions to influence their own investment decisions adversely, and that competition would prevent them from pawning off overpriced bonds on their customers and correspondents, they say that the hearing pursuant to the passage of the Glass-Steagall Act of 1933 uncovered numerous examples of such behavior:

> Mr. C. Cleever Hardwick: "The congressional hearings [of the early thirties] disclosed that the underwriting of securities presented substantial conflicts with five essential functions of commercial banks: the depository, correspondent, investment, trust, and lending functions. (p. 686) . . . In the 1931 hearings the correspondents of many of those metropolitan banks which engaged in underwriting bonds were described as providing a good dumping ground for second and third grade securities. (p. 689) . . . The 1931 Senate Banking and Currency Subcommittee found that in fact this [deterioration in bank investment policies due to a desire to support underwriting activities] did occur and that it was one of the most serious objections to permitting a combination of underwriting and banking functions in a single organization." (p. 690)
>
> Mr. Amyas Ames: "The reasons which compelled the passage of the Glass-Steagall Act were the earlier failures to discern that commercial banking and investment banking are two fields of activity essentially different in nature." (p. 524)

Rather than attempting to refute statements such as these, advocates of relaxed restrictions of banks have taken the stand that "it simply can't happen again." Comptroller Saxon, for example, argued along these lines before the House Banking and Currency Committee. The following dialogue between the Comptroller and Congressman Henry S. Reuss is instructive on this point:

> Congressman Reuss: ". . . I ask you, are you unfamiliar with the history of the 1920's, when there was a national scandal because our banking institutions got into the underwriting business and frequently dumped sour issues into their own investment accounts?

[22] *Ibid.*, p. 61-63.

Are you unfamiliar with the history of the Glass-Steagall Act of 1933, which by almost unanimous consent ended this scandalous condition? And if you are, why do you want to take us back to those bad days where bankers could serve two masters and go into the underwriting business? Then if the issue went sour, they could use their God-given powers of credit creation to be the lenders themselves."

Mr. Saxon: ". . . I am familiar with what occurred during that period. . . . But I think that conditions are so vastly changed. There was no regulation. There was little in the way of statute. It was only with the introduction of the 1933 and 1935 banking acts as to lending terms and various other restrictions that we began to establish an array of suitable bank regulations in all areas, not merely in this but in other areas." (p. 60)

Other proponents of extended bank underwriting powers argue that dragging up the specter of 1933 is misleading in the *present* context because the excesses of that time resulted primarily from commercial-bank underwriting of industrial and foreign securities rather than municipal obligations. Alan K. Browne, for example, told the House Committee that "there is no indication that municipal bonds as a class were responsible for severe (bank) losses [in the years prior to the enactment of the Glass-Steagall Act]." (p. 425)

On the whole, however, advocates of extended commercial-bank underwriting powers have not questioned the validity of the general assertion that commercial-bank underwriting activities played a significant role in bringing about the financial excesses of the twenties. And yet, despite a myriad of statements to the contrary, there is actually little evidence to support this admittedly persuasive argument for maintaining the status quo. To be sure, it is possible to cite numerous statements in the Congressional hearings and debates of the early thirties about the terrible consequences of having allowed commercial banks to underwrite securities. In nearly all cases, however, these statements are not supported by enough data to give them substance. Professor Marcus Nadler, for example, provided no data to support his frequently quoted statement that correspondent banks provided "a good dumping ground for second- or third-grade securities."[23] Moreover, Senator Brookhart's equally famous assertion that these securities "depreciated so much that they closed several thousand banks"[24] also was made without benefit of supporting data.

It cannot, of course, be denied that an increasing amount of securities underwriting was done by commercial banks during the twenties, or that many underwriting banks sold securities to their trust accounts,[25] correspondents, and customers that later declined in value. But neither can it be forgotten that trust accounts, correspondent banks, and individual investors who did not get investment advice from underwriting banks also frequently lost money. And whether or not those investors who dealt exclusively with underwriting commercial banks fared worse *on the average* than other investors has never been shown.

V. *Summary and Conclusions*

As of this writing, the House Banking and Currency Committee is once again considering a bill to authorize banks to underwrite and deal in municipal revenue bonds. If the Committee holds hearings on this bill, it will receive numerous arguments both for and against altering

[23] 71st Cong. Hearings, *supra* note 5, p. 502.
[24] 72nd Cong. Hearings, *supra* note 6, p. 2221.
[25] The assertion about trust accounts has, in fact, been questioned on several occasions. As early as 1932, Steven L. Osterweis wrote that "there have been no dependable data of trust accounts absorbing [commercial bank underwriting] affiliate issues to any significant extent." Steven L. Osterweis, "Security Affiliates and Security Operations of Commercial Banks," *Harvard Business Review*, (Volume XI, No. 1) October, 1932.

the status quo. It seems likely, however, that the main question will continue to be whether the alleged interest-savings to states and municipalities resulting from permitting banks to underwrite revenue bonds would be sufficient to risk the increase in concentration and the undesirable conflicts of interest that some say are inherent in expanding the link between commercial and investment banking.

Unfortunately, without actually giving banks access to the revenue bond market it seems unlikely that meaningful estimates of the size of interest cost savings will be made. Certainly the available estimates are more misleading than helpful. The Georgia Highway Authority bond case, for example, provides little, if any, generalizable information on this subject. And, in the absence of evidence concerning the impact that bank underwriters would have on the demand for municipal revenue bonds, the assertion that the range of possible savings is limited to a fraction of the current underwriters' spreads on these issues seems indefensible. On the other hand, there is little reason to believe the argument that the admission of banks to the market would ultimately increase the costs of revenue bond financing, for even if banks obtained a lion's share of the municipal bond underwriting business they would find it necessary to bid aggressively to maintain their position. And this presumably would leave issuers no worse off than they are now.

The conflict-of-interest question is even more difficult. Economic analysis, I believe, suggests that permitting banks to underwrite revenue bonds should not lead to conflicts with their conscientious performance of traditional commercial banking activities. The much discussed empirical evidence from the twenties, however, does not provide strong support for this analysis. But neither does it provide significant evidence to the contrary. Nevertheless, for more than 30 years many people, some of them congressmen and senators, have been brought up believing that such conflicts were intimately associated with the financial excesses that preceded the Great Depression. And this factor, more than any other, makes somewhat remote the prospects for relaxing restrictions on bank underwriting of municipal revenue bonds.

►STANLEY SILVERBERG

Bank Debenture Financing: A Comparison of Alternatives

During the same week in June 1965, the second and third largest banks in the United States each offered bond issues that were substantially larger than any previously offered by commercial banks. These two bond issues—one a straight debenture, the other, convertible into common stock—have provoked wide discussion in recent financial literature. This paper explores the relative advantages and disadvantages of these alternative approaches to bank debt financing. The final section of the paper attempts to dispel the confusion about the effect of bank borrowing on bank deposits and money market conditions that has recently been evidenced in the financial press.

Stanley Silverberg is a Senior Economist, Department of Banking and Economic Research, Office of the Comptroller of the Currency. The author wishes to acknowledge the help of Thomas Ryan, a Research Assistant in the Department of Banking and Economic Research, in the gathering and processing of data for this article.

I. *Bank Borrowing and Leverage*

It will be convenient initially to set forth the relationships among bank operations, bank earnings, and bank leverage. "Leverage" refers to the practice whereby business firms finance the acquisition of assets through borrowing in order to increase the ratio of assets to equity investment. If the return on acquired assets exceeds the cost of borrowing, the firm is able (through leverage) to raise its rate of return on equity investment. Although many nonfinancial firms are primarily equity-financed, for commercial banks, leverage—through deposits—necessarily plays a major role in operations. Earnings on bank assets typically are substantially less than the cost of bank capital.[1] How-

[1] The term "cost of capital" in this article refers to the return that must be earned on stockholder investment to attract, maintain, or justify such investment. See Stanley Silverberg, "Bank

ever, the earnings margin on deposits (the difference between earnings on the investment of deposit funds and their cost of acquisition and retention) tends to raise the rate of return on equity investment to a level which equals or exceeds the cost of bank capital. As long as deposit-derived funds are invested profitably, the higher the ratio of deposits to capital, the higher will be the rate of return on bank capital, other factors held constant. However, there exist certain constraints on the extent to which banks may increase their deposit leverage.[2]

Borrowing through instruments that are subordinate to depositor claims enables banks to increase leverage without impairing the protective cushion afforded depositors. However, it is important that we distinguish two different situations whereby leverage is increased through borrowing. First, assume a bank has sufficient capital "to cover" its deposits. By selling debentures, it acquires additional funds and is able to increase further its ratio of earning assets to equity investment. As long as a bank can earn more on its investments than its cost of borrowing, it will raise its earnings and its rate of return on equity investment. A second possibility is that the bank has *insufficient* capital, however this insufficiency is determined, and sells debentures to make up the capital deficiency. This use of debentures as an alternative to increasing equity investment can provide a substantial addition to leverage (or, looked at differently, can forestall the reduction in leverage that would occur if common stock were sold).

To illustrate the difference between these two cases, assume that two banks each have deposits of $1 billion. The first bank has equity of $80 million (assumed to be the appropriate minimum), and assets of $1,080 million. It chooses to sell $20 million in debentures, raising its asset total to $1.1 billion and its ratio of assets to equity from 13.50 to 13.75.[3] The second bank has equity of only $60 million and assets of $1,060 million. It sells $20 million in debentures to bring its total capital up to $80 million and its total assets to $1,080 million. Its ratio of assets to equity is now 18.0. Had the second bank raised the "necessary" $20 million by selling additional stock, its ratio of assets to equity would have fallen from 17.67 to 13.50. Thus, in this second case, where debentures were used as a substitute for equity, their effect on bank leverage would be substantially greater than in the first example, where the "need" for capital did not exist.

II. *Straight Debentures*

Most of the debenture issues sold by banks during the past two years have reflected some combination of the two situations cited in the preceding section. Where capital was "needed," most banks have sold more than they "had to." In the future, however, some of these banks may restrict retained earnings relative to deposit growth in order to lower their capital-deposit ratios to the minimum level, and thereby take advantage of increased leverage possibilities.[4]

Let us further examine the hypothetical bank with deposits of $1 billion, equity investment of $60 million, and $20 million in debenture liability. If the bank wishes to maintain its leverage, then, as deposits grow, the bank will have to add proportionately not only to equity (say, through retained earnings), but also to its indebt-

---

Borrowing: An Analysis of Recent Experience," *The National Banking Review*, 2, December 1964, pp. 215-216.

[2] *Ibid.*, pp. 215-216.

[3] Financial writers have sometimes assumed that additions to capital would enable a bank to increase its earnings immediately by an amount equal to the capital increase times the bank's average return on capital, (for example, see *American Banker*, May 19, 1965, p. 2). Other things equal, this would not be the case, unless the bank could maintain its degree of leverage.

[4] This possibility is discussed by David Cates in "Bank Dividend Policy," *Bankers Monthly*, March 15, 1965, pp. 19-20.

edness. If deposits grow by an average of 4 percent per year, then the bank will have to increase its capital by an average of 4 percent a year to maintain its capital-deposit ratio. However, unless debt continues to account for 25 percent of the bank's capital (or more), the degree of leverage will decline—a dollar of equity will support fewer dollars of earning assets.

Suppose the debenture issue requires annual redemption payments, say, to retire the indebtedness in 20 years. In this case, barring any subsequent debt financing, increases in equity will have to be large enough to meet redemption payments and to match deposit growth—if the bank is to maintain its capital-deposit ratio. In this case, the reduction in the bank's leverage is accelerated.

One might pose the question, what can the bank gain through the *temporary* use of debentures? It might gain the use of borrowed funds at lower cost than the rate the bank is able to earn on these funds. It can temporarily substitute debt for equity and, in this sense, lower its capital cost, since it is cheaper to acquire $20 million of equity over a 20-year period in the future than to acquire $20 million of equity immediately. In addition, the debenture financing may enable a bank to substitute retained earnings for the sale of common stock as a means of adding to equity. The combination of a higher tax rate on dividend income than on capital gains, and the fact that the latter are taxed only when realized, makes "implicit financing" through retained earnings cheaper than the sale of common stock. Thus, even when debenture financing does not provide a vehicle for *permanently* increasing leverage, there are several reasons for its attractiveness vis-a-vis straight equity financing.[5]

[5] Of course, there is still a considerable difference between temporarily substituting debt for equity and thereby delaying the acquisition of equity funds, and using debt to acquire earning assets when the additional capital is *not* needed.

The decision whether debentures are to play a permanent role in a bank's capital structure does not have to be made at the time of the bank's initial debt financing, as long as the bank confines itself to a straight (as opposed to a convertible) debenture. The presence or absence of a redemption provision in the bond indenture may be a reflection of state banking regulations, lender requirements, or standard financial practice, rather than any indication of the temporary or permanent nature of debt. A bank may choose to come back into the market periodically to replace its retired debt, to expand its debt in order to *maintain* its debt-equity ratio, or to expand debt in order to *raise* its debt-equity ratio.

III. *Convertible Debentures*

In the case of convertible debentures, the decision whether debt will ultimately be replaced by equity will be determined primarily by subsequent earnings performance of the bank and the market's response to this performance, although the precise timing of conversion may be determined by the bank's subsequent dividend policies.

Leverage is not the principal attraction of convertible bonds. By setting a conversion price above the current market, a bank is able to obtain an immediate addition to capital with less equity dilution than would occur through the sale of common stock. The equity dilution does not immediately occur and, under certain (unfavorable) circumstances, it may never occur. However, the basis for conversion is determined before the convertible bonds are sold, and thus, convertible bondholders can be said to share successful operations from the time the bonds are sold—assuming conversion ultimately will take place.

The value of the conversion feature enables banks to sell convertible bonds with a lower coupon than the market would require on straight debentures. Nevertheless, the coupon on the convert-

ible bond typically provides a higher yield to the investor than a similar investment in the same bank's stock. Even though this is the case, the after-tax cost of interest payments to the bank may be *less* than the cash outlay of additional dividend payments if the bank had chosen to sell stock.[6] For example, if the First National City Bank in its recent financing had offered additional stock at $50 per share, the current $1.60 dividend would have represented a 3.2 percent yield—less than the 4 percent coupon on the convertible debenture actually offered. However, this would have entailed a greater cash expense to the bank than the *after-tax* interest payments of only about 2 percent. The conversion price set on this issue was $66⅔, about 25 percent above the market at the time of the offering. Thus, a $100 bond could be converted into 1.5 shares of common stock which would pay $2.40 at the bank's current $1.60 dividend. The bank's dividend per share would have to be raised to $2.67 (by about 67 percent) before the dividends on the 1.5 shares would equal the current bond coupon. If the bank's dividend payout and the market's valuation of the bank's earnings continue to approximate present relationships, then the bank's stock price would reach the conversion price long before the bank's dividend reaches $2.67. However, bondholders will not exercise their conversion option until potential dividends exceed the bond coupon, unless the issue matures or is called.

Thus, for a substantial period of time, a bank will continue to realize a tax saving by paying out bond interest instead of dividends. The potential tax saving is an important factor in deciding upon the debenture package, and may subsequently influence a bank's dividend policy. Insofar as there exists a trade-off between the conversion price and the coupon saving from a convertible debenture, the potential tax saving would encourage a package with a high coupon and a high conversion price. Too low a coupon may lead to early conversion, unless the bank chooses to restrict its dividend payout.

What happens if conversion has not occurred by the time the debentures mature? This would be true if the stock price is below the conversion at the time of maturity.[7] In this case, the convertible

[6] Below are listed for several banks that have recently sold convertible debentures, the debenture coupon, conversion price, dividend, and the percentage increase in the dividend that will bring about conversion (assuming an accompanying increase in the stock price). It is apparent from these figures that the after-tax cost of the convertible debenture coupon in the case of Valley National Bank of Phoenix exceeded the dividend cost that would have been incurred initially by selling stock.

[7] Even if conversion would lower the income of bondholders, they would, of course, convert prior to the bond maturity if the market value of the acquired stock exceeded the par value of the debenture.

Bank	Debenture Coupon	Conversion Price*	Dividend*	Dividend increase to induce conversion (in percent)
American Fletcher NB	3.625	70	2.00	26.9
FNB of Atlanta	3.50	75	1.60	64.1
FNB of San Jose	4.00	30⅝	1.00	22.5
FNCB of New York	4.00	66⅔	1.60	66.7
Valley National Bank	3.50	85	1.00	197.5
Wells Fargo Bank	3.25	60	1.00	94.6

* At time of debenture offering. These figures do not take account of stock dividends and changes in cash dividends since the debenture offering.

debenture acquires the same characteristics as a straight debenture with no required sinking fund.

IV. *Convertible Versus Straight Debentures*

The principal advantage of a convertible debenture vis-a-vis a straight debenture is the lower coupon that can be obtained on the former. Also, the convertible issues may present no refinancing problems and require no sinking fund payments. The fact that the conversion price is set above the market, and thus entails less dilution than straight equity financing, is no advantage compared with straight debenture financing. A bank could get virtually the same results (at a somewhat higher coupon cost) by selling a straight debenture and eventually replacing it with common stock, when, presumably, the price of the bank's stock will be higher. Straight debentures may also enable a bank to postpone the sale of equity to what it considers to be a desirable time, without having to make an advance commitment as to price. And, of course, the use of the straight debenture allows the option of replacing debentures with retained earnings, or with other debentures.

The cost of a convertible debenture will depend upon its coupon and conversion price, the bank's capital cost, and the number of years before conversion is effected. Assume the conversion price is set at 25 percent above the current market (approximately the situation in the recent First National City financing), and that the bank's cost of equity is 7 percent. Then, as a first approximation, the capital cost of the convertible debenture would be $\frac{1}{1.25}$ (.07) = .056 or 5.6 percent. However, it also is necessary to take account of the cash saving a bank will realize by paying interest instead of dividends until conversion is effected. The cost of the debenture coupon will be the same throughout its life (assuming tax rates remain constant), whereas the dividend saving will vary according to the bank's current dividend rate. In the case of First National City's convertible debenture, the dividend cost to the bank would be approximately $6.4 million if the entire issue were converted in the first year (4 million shares multiplied by the $1.60 dividend). However, the amount of potential dividend payments will increase in subsequent years if the dividend per share is increased. The cost of the interest payment on the debenture to the bank will remain approximately $5.33 million per year (assuming a 50 percent applicable tax rate) as long as the debenture remains outstanding. Let us assume that the dividend per share is increased by 4 percent per year, and that the bank's capital cost is 7 percent. If these assumptions prove correct, debenture holders will convert at the end of the 13th year. The cash saving to the bank will lower its capital cost by approximately 0.56 percent[8] to a level, given our assumptions, of approximately 5 percent, compared with a capital cost of about 7 percent for straight equity financing.

In the case of a straight debenture, the capital cost will vary according to subsequent replacement or refinancing. The cost of a perpetuity bond, presumably, would be the after-tax cost of the bond coupon. This would also be the case if a

---

[8] The present value of the cash saving to the bank would be:

$$\$6.4 \text{ million } \Sigma \frac{1}{1.07^2} + \frac{1.04}{(1.07)^2} + \frac{(1.04)^2}{(1.07)^3} \cdots + \frac{(1.04)^{n-1}}{(1.07)^n}$$

$$-\$5.33 \text{ million } \Sigma \frac{1}{1.07} + \frac{1}{(1.07)^2} + \cdots \frac{1}{(1.07)^n}$$

$$= \$21.4 \text{ million where } n = 13.$$

Multiplying $21.4 by .07 to convert cash saving into a *perpetual* flow yields approximately $1.5 million, or 0.56 percent of $266.6 million financing.

straight debenture were sold with no sinking fund and were periodically refinanced at the same coupon. Where debentures are replaced by equity—through retained earnings or common stock—the capital cost will range between the cost of straight debentures and the cost of retained earnings or equity financing. The longer equity financing is delayed, the closer the capital cost will be to the cost of perpetual debt financing.[9]

Thus far we have considered only the advantages of increased leverage; we have not taken account of the possible increased risk associated with it. It is generally conceded that, at some point, the risk associated with increased leverage raises the cost of equity. However, whether moderate amounts of leverage necessarily raise the cost of equity is an issue that has been debated in recent economic and financial literature. With respect to banks, there is little evidence that the cost of equity has been affected by leverage. However, when deposits afforded the only basis for bank leverage, supervisory authorities may have limited bank leverage to levels associated with very modest risk—given the nature of bank assets and operations. Borrowing may enable banks to attain a degree of leverage (consistent with supervisory standards) that will result in an increase in the cost of bank equity. To the extent that this occurs, at least part of the earnings advantage of permanent debt and increased leverage will be offset by less favorable valuation of expected earnings and dividends in the stock market. And, to the extent that this occurs, the ultimate advantage of straight debentures compared with convertible debentures will be correspondingly diminished.

V. *Debentures, Bank Deposits, and Monetary Policy*

When banks sell debentures they receive as payment checks drawn on themselves or on other commercial banks. Initially, one kind of bank liability is exchanged for another. This has tended to cause some confusion among financial writers concerning the effects of debenture financing on bank deposits and reserves.[10]

When financing takes place outside of the banking system, payments are still made by checks drawn on the banking system. But such transactions do not directly affect the volume of member bank deposits or reserves. Checks are drawn on the accounts of nonbank lenders and deposited to the accounts of borrowers, with no appreciable effect on the volume of bank reserves, required reserves, or deposits.[11]

When banks sell debentures and reinvest acquired funds, there is no significant direct effect on bank reserves, although bank earning assets and liabilities are increased. One can conceive of the process as follows: Instead of insurance companies or pension funds lending to nonfinancial corporations (which in turn spend the acquired funds on goods and services), they lend to banks, which in turn lend to the same nonfinancial corporations, etc. Another layer of financial assets and debt is created, but the volume of ultimate spending by nonfinancial firms remains unaffected. Of course, it is possible that bankers prefer different

[9] If a bank sells bonds at an interest cost of 2.5 percent and replaces them with common stock after 10 years, assuming earnings and deposit growth of 4 percent and a 7 percent cost of equity, the bank's capital cost would be 5.20 percent. If the bonds were replaced after 25 years the cost would be 4.13 percent. The effect of alternative financing strategies on bank stock prices is examined in the Appendix.

[10] For example, see *The New York Times*, June 6, 1965, Section 3, pp. 1, 12.

[11] To the extent that a greater share of financing takes place outside the banking system (say, through nonbank intermediaries or through the corporate bond market), a lower volume of bank reserves, deposits, and credit will be consistent with any desired level of monetary ease or tightness.

kinds of borrowers or maturities than other institutional lenders. Some shifts may occur in the degree of ease or tightness existing in various sectors or geographic regions of financial markets. However, such effects are apt to be small and unlikely to negate the generalization that bank debenture financing has little effect on financial market conditions. The result would be different if those who purchase debentures use funds that would otherwise remain on deposit with commercial banks. If the latter is the case, then a given volume of bank reserves will support a greater volume of financing *and* spending. A lower volume of bank reserves and deposits will then be consistent with a given level of monetary ease or tightness.

The question, where do debenture purchases ultimately come from, relates not only to financial market conditions generally, but also to the financing strategy of the selling bank. It has been argued that some portion of bank debentures will be sold to the bank's own depositors, who will exchange one kind of liability for another of the same bank.[12] Presumably, this is more likely to be the case for a bank that sells its debentures locally, since the purchasers of the debentures are then more likely to be depositors of the selling bank. This may, indeed, be the case in a few instances. However, it is important to realize that this approach presupposes that the sale of debentures by the XYZ bank will persuade an individual or a financial institution to alter its asset portfolio by substituting bonds for demand or time deposits. This seems extremely unlikely in most cases, particularly where we are concerned with institutional investors (most bank debentures have been purchased by pension funds and insurance companies). After all, at any time there are outstanding bonds of comparable quality and yield. Why should the sale of *a* particular bond persuade a lender to make a switch from cash to bonds that he would not otherwise have made?

In the case of convertible bonds, many existing stockholders may exercise rights to acquire bonds in order to maintain their equity interest. However, even in this case, although bonds will be paid for by checks written on the selling bank, those who acquire the convertible bonds are likely to make other portfolio shifts, so that the ultimate source of funds used to pay for the bonds may be proceeds of other security sales. In those instances where convertible or straight debenture sales do result in a deposit reduction, such a reduction is more likely to be in time than in demand deposits.[13]

One final point should be noted with respect to debenture sales and bank deposits. A bank utilizing debenture proceeds for commercial loans may be in a stronger position to compete for commercial accounts. Also, a larger capital account and, possibly, a larger loan limit may increase the bank's ability to compete for larger commercial accounts. In this sense, debentures may indirectly enable a bank to acquire deposits at the expense of competing banks.

[12] See Paul Nadler, "Can Debentures Save the Smaller Bank?" *Banking*, Nov. 1964, p. 98; Morris A. Schapiro, "Taking Another Look at Long-Term Bank Financing," *The Commercial and Financial Chronicle*, May 28, 1964, p. 10.

[13] To the extent that this occurs, the shift from time to demand deposits would result, other things equal, in an increase in required reserves and a decline in bank deposits, assuming no adjustment in member bank reserves.

Appendix

Assume a bank earns an after-tax return of 3 percent on capital-derived funds, and 0.5 percent on deposit-derived funds. Initially, the bank has capital of $60 million and deposits of $1 billion. Its earnings are 60 (.03) + 1,000 (.005) = $6.8 million. Assume further that deposits are expected to grow by 4 percent per year and that the cost of equity is 7 percent. If the bank is to maintain its capital-deposit ratio, its capital will have to grow by 4 percent per year (by $2.4 million in the first year, by $2.496 million in the second year, etc.). Dividends will be $4.4 million (6.8 − 2.4) in the first year and increase by 4 percent per year. Thus, the value of the bank's stock will be*

$$4.4 \sum \frac{1}{1.07} + \frac{1.04}{(1.07)^2} + \cdots + \frac{(1.04)^{n-1}}{(1.07)^n} + \$146.7 \text{ million.}$$

* $P = \frac{D}{K\text{-}R}$ where P is the price of the stock or value of the firm, D is the initial dividend, K is the cost of capital, and R is the expected rate of dividend growth. For an explanation of this formula, see Silverberg (*op. cit.*) p. 17-19 and Robert Ortner, "The Concept of yield on Common Stock," *Journal of Finance*, May 1964, pp. 186-198.

If there are one million shares of stock outstanding, the stock price would be $146.67 per share.

Let us now assume that capital "has to" be increased by $20 million (because of supervisory authority pressure, the bank's own determination, or some combination of the two), and that the bank will subsequently maintain this higher ratio (1-12.5) of capital to deposits. The bank can increase its capital by selling additional common stock, by selling straight debentures, or by selling convertible debentures. If the bank sells straight debentures, it might choose to add to its indebtedness annually in order to maintain its debt-equity ratio; it might retire its debenture through scheduled redemption payments; or it might keep its indebtedness fixed, say, by refinancing its debentures at or prior to maturity.

The table lists the number of shares of stock outstanding and the price per share for each of the following financing alternatives:

1. Equity financing.
2. Straight debenture with 5 percent coupon and with subsequent financing (at the same cost) to maintain the debt-equity ratio.
3. Straight debenture with 5 percent coupon and redemption payments retiring 5 percent of the original debt each year from the 6th to the 25th year.
4. Straight debenture with 5 percent coupon and no sinking fund provision, with intended refinancing (at the same interest cost) at or prior to maturity.
5. A convertible debenture with: (a) a 3.25 percent coupon and a conversion price set 15 percent above the market at the time of the offering; (b) a 3.50 percent coupon with a conversion price 20 percent above the market; and (c) a 4.00 percent coupon with the conversion price set 30 percent above the market.

The figures in the table assume a 50 percent tax deduction on bond interest; they assume that the bank continues to earn the same returns on deposit- and capital-derived funds, continues to maintain a 1-12.5 capital-deposit ratio, and continues to experience deposit growth of 4 percent per year; and they assume that the cost of bank equity continues to be 7 percent. The alternatives suggested do not exhaust the possibilities open to banks. Apart from alternative coupons, maturities, conversion prices, etc. available to an individual

Table

Effect of Financing Strategy on Equity Prices

Strategy	Price Per Share ($)*	Number of Shares Outstanding (thousands)†
1	120	1,167
2	150	1,000
3	128.0	1,000
4	132.9	1,000
5 a	123.6	1,140
b	125.1	1,133
c	126.3	1,122

* Derived by solving $P = \frac{D_1}{1.07} + \frac{D_2}{(1.07)^2} \ldots + \frac{Dn}{(1.07)^n}$. In each case, D was determined by subtracting from earnings, after-tax interest costs, bond redemption payments, and an amount (retained earnings) necessary to increase capital by 4 percent.

† In the case of 5, the number of shares outstanding are after conversion which (given our assumptions) would occur in the 5th year in 5a, in the 10th year in 5b, and in the 15th year in 5c. These figures are approximations. To determine the number of shares outstanding, it is necessary to solve simultaneously the stock price equation and an equation relating the conversion price to the amount of the financing.

bank, there exist innumerable possibilities with respect to mixed financing strategies either initially or over an extended period of time.

The above figures reflect a number of simplifying assumptions. However, varying some of these assumptions may not have a substantial effect on the results. For example, if fluctuations occurred in earnings growth, capital-deposit ratios, and the dividend payout, results might not be substantially affected as long as growth *approximated* the figure used, and as long as the capital-deposit ratio and the dividend payout maintained *approximately* the same long-run relationship. Varying the assumption that the cost of bank equity remains constant will change the stock valuation figures, but not the relative rankings of stock prices, assuming that the cost of bank capital continues to be more expensive than the cost of debt.

The assumption that the cost of bank equity is *unaffected* by leverage is basic to both the absolute and relative magnitude of the above figures. To the extent that increased leverage raises the cost of bank equity, the advantages of alternatives 2, 4, and 3 (in that order) would be partially or even wholly offset.

►DAVID I. FAND

Financial Regulation and the Allocative Efficiency of Our Capital Markets

Financial intermediaries enable borrowers who wish to expand their investment in real assets to borrow at lower rates and easier terms than if they had to borrow directly from the lenders. If the creditors of financial intermediaries were required to hold the obligations of the borrowers—promissory notes, bonds, and mortgages—in their own portfolios, they would presumably insist on higher rates and stricter terms. Financial intermediaries may reduce the risk and enhance the value of these assets, through administrative economy and expertise in negotiating loans, and through pooling independent risks. In addition, governmental guarantees and other provisions designed to assure their solvency and liquidity render the liabilities of the intermediaries safe assets for the saver. The intermediation of the financial institutions thus satisfies the portfolio preferences of both lender and borrower by transforming the obligation of the borrower into a much more attractive asset.[1]

David I. Fand is a Professor of Economics at the State University of New York at Buffalo. The author would like to acknowledge the support of the National Science Foundation which facilitated this research, and to thank the Cowles Foundation for Research in Economics at Yale University where this work was done.

[1] A comprehensive view of the scope and function of our capital markets and of the financial intermediaries is presented in R. W. Goldsmith, *The Flow of Capital Funds in the Postwar Economy*, National Bureau of Economic Research, New York, 1965. For an analysis of the role of the financial intermediaries and a theory of financial structure, see J. G. Gurley and E. S. Shaw, *Money in a Theory of Finance*, The Brookings Institution, Washington, D. C., 1960. For the stabilization aspects, see D. I. Fand, "Intermediary Claims and the Adequacy of our Monetary Controls" in D. Carson (ed.) *Banking and Monetary Studies*, Homewood, Ill: Richard D. Irwin Inc., 1963, pp. 234-254; and J. Tobin and W. C. Brainard, "Financial Intermediaries and the Effectiveness of our Monetary Controls," *The American Economic Review*, May 1963, pp. 383-400.

Financial intermediaries operate under rules and regulations supervised by Federal and state regulatory authorities. These laws, designed either to protect the solvency of the institutions or to achieve some other desired social goal, affect the lending policies of these institutions.[2] The Commission on Money and Credit, in its report, summarized the effect of these regulations on the intermediaries as follows:[3]

> The pattern of financial regulation which has emerged from this complex of forces relies upon numerous state and Federal regulatory authorities. It often subjects single financial institutions to multiple regulatory authorities and preserves the domain of specialized institutions. Above all, it emphasizes safeguarding the liquidity and solvency of the individual institution by restrictions on their investments, chartering, interest rates on deposits, and by other devices.

As a result, these laws and regulations have an important impact on our capital markets because they affect the composition of commercial bank portfolios, they impose statutory rate maxima, they restrict the acquisition of equities by many financial intermediaries, and they tend to cause mutual thrift institutions to specialize in residential mortgages.

This specialization may interfere with an optimum allocation of funds. An optimum allocation of funds among competing alternatives requires that each financial intermediary invest its resources, in the light of existing rate differentials, so as to maximize its profits. In such an allocation, loans and investments of comparable risk would pay comparable rates of interest. The effect of the regulations is, in many cases, to cause the financial intermediaries to specialize in one class of assets.[4] To the extent that such portfolio specialization is widespread, it lessens the competition among financial intermediaries for earning assets. The allocation of funds among borrowers and alternative uses of funds may, in consequence, reflect the flow of funds to specialized institutions and, to a much lesser extent, the interest rate differentials among categories of loans and investments.[5]

While portfolio specialization and the resulting inflexibility may lessen competition and lead to a misallocation of funds, it need not necessarily have this effect.[6] The necessary adjustments could come

---

[2] Throughout our history, financial regulation has come about as a result of financial abuses and panics. For example, defaulted mortgages, insolvent institutions, and the discovery of financial abuses by corporate insiders during the thirties brought legislation to protect the institutions, the savers, and the economy. Perhaps even more crucial from the viewpoint of this paper, public regulation of private financial intermediaries has been influenced by the desire to promote thrift, to encourage home ownership, to facilitate the provision of small-business loans, and to achieve better control of the money supply.

[3] See *Money and Credit: Their Influence on Jobs, Prices and Growth*, Englewood Cliffs, N. J.: Prentice-Hall, 1961, p. 157.

[4] See T. G. Gies, T. Mayer and E. C. Ettin: "Portfolio Regulations and Policies of Financial Intermediaries" in *Private Financial Institutions*, Englewood Cliffs, N. J.: Prentice-Hall, 1963, pp. 157-265.

[5] Perhaps the clearest example, though in some ways possibly an extreme one, is the manner in which Congress restricted savings and loan associations to the support of home ownership in a relatively limited geographic area. Among the measures adopted with this view in mind are: "(1) Limitation of the primary lending area of an association to within fifty miles of its office; (2) Specification that majority of funds be invested in first-mortgage home loans (typically, other investments are limited to 20 percent of total savings); (3) Restrictions as to type and amount of investments which can be made, other than first mortgage loans and government securities; (4) Limitation on ability to buy and sell loans or participations in loans." See L. T. Kendall, *The Savings and Loan Business*, Englewood Cliffs, N. J.: Prentice-Hall, 1962, p. 37.

[6] Ordinarily we regard specialization and division of labor as evidence of an advanced and highly developed market. But specialization may also result from legal restrictions or private agreements to limit competition, in which case it is not necessarily associated with efficiency. Indeed, to the extent that specialization and

about if asset-holders were sufficiently sensitive to yield differentials and shifted from one financial asset to another. To take an extreme example, consider a class of intermediaries that is restricted to, or specialized in, one industry A, and assume that at a particular moment in time other uses of funds—say, in industry B—are more profitable. Now, although the intermediaries that lend to A are unable, by assumption, to lend the funds where they will be most productive, it is still possible to get the correct allocation of funds. This requires two adjustments: First, it is necessary that the dividends paid by the intermediaries that lend to B rise relative to the dividends paid by the intermediaries lending to A; second, it is also necessary that savers shift from intermediaries that cannot lend to industry B to intermediaries which do. Put another way, portfolio shifts by savers from one intermediary claim to another, in response to yield differentials, could correct any misallocation inherent in portfolio inflexibility by the financial institutions.[7]

Under what conditions is it likely that savers will shift from one intermediary claim to another in this way? We shall assume that the demand for financial assets and the composition of savings are sensitive to yields, and that asset-holders will adjust their portfolios when yields change.[8] On this assumption, the corrective action will take place if the rate of return offered by the financial intermediaries follows closely the rate of return earned on their *new investments*. In these circumstances, intermediaries serving B will earn more currently, offer a higher return, and thus be in a position to attract funds from the other intermediaries.

A number of factors may cause the rate of return (interest rate or dividend) paid by the financial intermediary to the saver to diverge from the rate they are currently earning on *new loans* and *investments*.

1. Financial institutions pay the same rate to the newly placed funds and to the "old" funds.[9] In consequence, the rate they can pay on both new and old funds is based on the average earnings on their total portfolio, not on the new loans they place. Unless the assets of the intermediary are all short-term, its earnings will not rise sufficiently to affect the yield that it can pay out. Thus, consider an intermediary whose assets have an average maturity of five years. If the interest rate it charges on current loans and investments rises by 20 percent, the gross earnings on its portfolio will rise by only 4 percent. Consequently, even if the intermediary could pass on this entire increase to the public, a very substantial increase in

portfolio inflexibility on the part of financial intermediaries limits competition, the proper allocation of funds is hindered.

[7] One other possibility should be noted. If intermediary specialization is incomplete, and if several financial intermediaries hold a common asset such as Government bonds, there is a potential for transferring funds from one sector to another.

[8] It is not known to what extent changes in the structure of yields may affect the composition of saving. This is a difficult empirical problem. Irwin Friend, in his study on "Determinants of the Volume and Composition of Saving with Special Reference to the Influence of Monetary Policy" summarizes his findings as follows: "While interest rates (and other terms of credit) may not affect saving propensities very greatly, they do have a marked impact on the composition of saving, with savers not too surprisingly preferring assets with higher yields and lower costs or easier credit terms." See, *Impacts of Monetary Policy*, Englewood Cliffs, N. J.: Prentice-Hall, 1963, p. 686.

[9] Some institutions have at times used "split" rate plans under which longer term balances earn interest at a higher rate. For example, in 1960 some mutual savings banks in New York paid extra interest—one-quarter of 1 percent per annum—on funds that had been deposited for two years or more. This extra payment required the approval of the state banking board. Other plans include the introduction of special types of accounts.

interest rates would justify only a slight increase in dividends.

The lag between the average return on the portfolio and the current return on new loans and investments is emphasized in two recent studies of thrift institutions. In his study of the savings and loan associations, L. T. Kendall notes:[10]

> It should be kept in mind, however, that because the mortgage portfolio has been built up over a period of many years, the increase in total earnings tends to build up much more slowly than the rise in current mortgage rates might indicate. For example, between 1954 and 1957, the typical mortgage rate on conventional loans moved upward from 5 percent to 6 percent, a good 20 percent gain. During the same period, however, gross earnings on association mortgage portfolios rose from 4.91 percent to 5.11 percent, an increase of only 4 percent.

A similar view is expressed in a study of the mutual savings banks prepared by the National Association of Mutual Savings Banks:[11]

> Because of this basic concentration on long-term investments, earnings of savings institutions are less responsive to current increases in interest rates than are earnings of commercial banks. Except for borrowings from the Federal Home Loan Banks by savings and loan associations, sources of cash available for investment at current rates by savings institutions are limited mainly to savings inflows, mortgage repayments, and sales and redemption of securities. In contrast, commercial banks, whose loans and investments may be liquidated rapidly, have benefited more quickly from the sharp postwar rise in interest rates.

It follows that an intermediary, holding substantial long-term assets in its portfolio, finds that the movements in the average return do not adequately reflect the current rate on new loans and investments. Consequently, when the demand for its loans is increasing, the intermediary is not able to bid aggressively for new depositors since it cannot offer them a rate that reflects current conditions. This divergence between the marginal and average return may be mitigated somewhat for an intermediary whose total assets are growing rapidly, since the new loans and investments represent a larger fraction of the total portfolio; but there is no necessary mechanism to guarantee that the rapidly growing intermediaries will always match the industries with increasing loan demands. Finally, to the extent that the fluctuations in the rate earned on the longer term assets held by intermediaries are narrowed, there will be a corresponding narrowing in the gap between the marginal and average returns.

2. The rise in interest rates that the intermediary charges for its loans and receives from its investments will result in a corresponding rise in earnings only if operating expenses, as a percent of operating income, are relatively constant. On the other hand, if investment expenses rise when the intermediary seeks the higher rates of interest, its net earnings available for dividend distribution will be correspondingly lower. To the extent that these expenses are a variable cost, there may be a tendency for investment or operating expenses to rise with earnings; in addition, cyclical and longer term movements in operating expenses may introduce still another divergence between the gross rate earned by the intermediary and the dividend rate it pays to the public.

Studies of the experience of the mutual savings banks and the savings and loan associations point up both the wide swings and the longer term movements in operating expenses. For the mutual savings banks:[12]

---

[10] *The Savings and Loan Business, op. cit.*, pp. 112-113.

[11] National Association of Mutual Savings Banks: *Mutual Savings Banking*, Englewood Cliffs, N. J.: Prentice-Hall, 1962, p. 82.

[12] *Mutual Savings Banking, op. cit.*, pp. 83-84.

> The proportion of operating earnings absorbed by operating expenses and taxes has varied widely since 1920. Based on data for Massachusetts savings banks, this proportion declined moderately from 9.8 percent in 1920 to 9.0 percent in 1926 as earnings rose more rapidly than expenses. During the remaining prewar and war years, however, the ratio of expense to income rose steadily, reaching a peak of 18.0 percent in 1945, indicating the continued increase in expenses in the face of steady declines in operating earnings. On the basis of comprehensive earnings data for all mutual savings banks, the ratio of expenses and taxes to operating earnings rose from 22.0 percent in 1945 to 24.3 percent in 1948, but declined in each succeeding postwar year to 15.8 percent in 1960 as earnings rose at an unprecedented rate.

Similarly, for the savings and loan association we find that:[13]

> The ratio of operating expense to gross operating income declined steadily from almost 30 percent of gross income in 1946 to an estimated 23 percent at the end of 1959.

If we examine the postwar years and take the highest and lowest values, there is a maximum difference of 8 percent. While this is certainly not a large item, especially for year-to-year changes, it does illustrate one factor that influences the difference between the gross earning rate received by the intermediary and the rate that can be paid out to depositors.[14]

3. Additions to surplus and other reserve accounts in the mutuals may be large (between 10 percent and 40 percent of net income) in relation to income paid out. Although they add to the future safety of deposits, they are no substitute for interest income. The shareholder cannot draw upon the surplus and it is lost if he withdraws his account. Moreover, new shareholders have the same claim on the surplus as the old shareholders whose invested funds made it possible. For this reason, additions to surplus differ basically from the undistributed profits of corporations, because claims on the intermediaries are fixed in dollar amounts and cannot provide the basis for capital gains. Undoubtedly, the practice of accumulating surplus by the mutuals may be very desirable and necessary from the viewpoint of safeguarding the assets of the shareholders, since there is no equity cushion to protect against insolvency. Nevertheless, it is also true that the substitution of surplus for dividend tends to downgrade the dividend rate and thus interferes with the allocative function of the dividend return.[15]

When the accumulation of surplus is of the order of magnitude of 30 to 40 percent of net income, it tends to reduce the importance of the dividend rate and render it a less effective indicator for directing the flow of funds. This would be the case even if the practice with respect to surplus accumulation was fairly stable and subject to relatively invariant conventions. In fact, surplus accumulation may vary considerably from year to year and over time. For example, the mutual savings banks' payout ratio rose from 65 percent in 1945 to approximately 90 percent in the 1960's, with the greatest increase occurring in 1952 when the ratio rose from 71 percent to 82 percent—a

[13] *The Savings and Loan Business, op. cit.*, p. 132.

[14] A more complete statement would have to take account of the extent to which investment or operating expenses are a variable or fixed cost. It should also be noted that if investment expenses are relatively constant, they may have an opposite effect in that a given rise in the gross earnings rate implies a greater rise in the net earnings.

[15] The building-up of reserve accounts in the form of surplus, undivided profits, and bad-debt funds by the mutuals has also been questioned in recent years on the ground that it gives them a tax advantage over the commercial banks. For a comparison of taxes paid by different financial institutions, see J. G. and Y. E. Gurley, "Federal Income Taxation of Mutual Savings Banks and Savings and Loan Associations," Committee on Ways and Means, Tax Revision Compendium, Vol. III (G.P.O., 1959).

decline in the rate of accumulation from 35 percent to approximately 10 percent. Fluctuations of this order in the rate of accumulation introduce a potentially wide gap between the intermediaries' net earnings rate and the rate received by the asset-holder.[16]

4. Aside from any tendency for the accumulation of surplus to reduce the role and importance of the dividend rate, there is a further, and perhaps more significant, effect. The allocation of intermediary income between interest or dividend payments to the asset-holders, and additions to surplus, varies substantially among different types of intermediaries, among similar intermediaries in different stages of development, and also, apparently, over time.[17] Hence spreads, or changes in spread, between the rates earned by the intermediaries are not necessarily reflected in a similar spread among dividend rates paid the the saver. In consequence, the structure of dividend rates (and the spread among them) at any moment in time contains less useful information to guide investors in their portfolio choices; and, to this extent, the structure of rates becomes a less effective vehicle for allocating the flow of funds among intermediaries.

In general, even abstracting from the behavior patterns of different types of intermediaries, the accumulation of surplus complicates the relation between the net earnings by the intermediary and the dividend rate it can pay. If we take an extreme case, and assume that the amount accumulated as surplus is constant, the percentage change (though not the absolute change) in the dividend rate will tend to exceed the percentage change in net earnings; in this case, movements in the dividend rate reflect, with amplification, movements in the interest rate. On the other hand, if there are cyclical or longer term movements in the rate of surplus accumulation, or if surplus accumulation is a function of the earnings rate, the effect on the dividend rate needs further specification.

5. The amounts that intermediaries can pay out in interest or dividends and the amount that they add to reserves is subject to a variety of prohibitions, regulations, and tax provisions. Commercial banks cannot pay interest on demand deposits, are taxed at the ordinary corporate rate, and can deduct only such additions to reserves as are permitted by the Treasury. In their competition with the mutual thrift institutions, commercial banks are subject to a variety of restrictions: They must maintain a legal reserve; they are restricted in the amount of these (savings) deposits that may be invested in mortgages (a relatively high-yielding asset); and they are limited by Regulation Q on the interest rate they may pay.[18] Mutuals are taxed differently than stock companies, while credit unions, pension

[16] Variations in the rate of accumulation may also be used to minimize the gap between the marginal and average return in periods of rising interest rates.

[17] For an interesting proposal which relies on a cover for losses after they occur instead of trying to predict their need—by means of a loss reserve account—before they occur, see Marvin Rosen, "Competition among Financial Institutions for Demand and Thrift Deposits," *Journal of Finance*, May 1962, pp. 323-331. This proposal, if adopted, would also eliminate any tax advantage that the mutuals may have over the stock companies.

[18] In this connection, the following statement by the Federal Reserve Board may be noted: "In late 1958 market interest rates once more rose, and in 1959 reached the highest levels of the past 30 years. Because of the limitations imposed by Regulation Q, however, those commercial banks that were seeking aggressively to attract or maintain deposits were unable to follow the rise in market rates by increasing the rates offered on time and savings deposits. Thus, regulatory rates had finally come into close touch with the market." See Board of Governors of the Federal Reserve System and the United States Treasury Department, *The Federal Reserve and the Treasury: Answers to Questions from the Commission on Money and Credit*, Englewood Cliffs, N. J.: Prentice-Hall, 1962, p. 186.

trusts, and common trust funds are not taxed at all.

Savings and loan associations are required by law to build up reserves on a progressive basis over a prescribed period of time.[19] For the mutual savings banks, the general reserve accounts include accounts whose use is restricted by law—for example: the "surplus fund" of New York savings banks, accounts whose use is restricted by management decision; and other reserve accounts whose use is unrestricted, such as the general contingency reserve for undivided profits (not including valuation reserves against specific assets). Although some of these provisions and conventions may be justified on other grounds, they do limit the extent to which the competition among intermediaries (for the public's funds) is based on their portfolio earnings.[20]

6. The fact that intermediaries must compete for the savers' funds puts them under pressure to maximize their earnings by correctly allocating their funds among classes of borrowers. On the other hand, many intermediaries provide their specialized services on a tied-in basis, and may thus obtain the savers' funds even though they are not placing these funds in the most productive uses. For example, a bank depositor is not offered an interest rate on his deposit that is related to the bank's earning on its assets (less investment expenses), and he is not confronted separately with a schedule of charges for the checking, bookkeeping, and clerical and accounting services that is related to the cost of providing these services. The introduction of service charges on demand deposits has been a step toward specific allocation of checking costs against individual accounts; nevertheless, the extent to which the *general* intermediary function of commercial banks can be separated from the *specialized* function of clearing checks and providing other services is limited by the prohibition of interest on demand deposits and by the inadequate pricing of bank services. Many banks assume that deposit balances will compensate them for services rendered and yield a profit, and they do not have an adequate mechanism for determining these costs.[21]

Given the prohibition of interest payments on demand deposits and the inadequate pricing of banking services, the proportion of the public's funds held as demand deposits is determined primarily by the desire for checking and other bank services and for liquidity, and only to a

[19] "The Federal Savings and Loan Insurance law states that after twenty years of operation, an association must have accumulated a reserve equal to 5 percent of savings capital. The Insurance Corporation has also developed a series of bench marks which must be met by individual institutions in building toward this requirement; associations must reach this 5 percent figure according to a specified schedule by the twentieth anniversary of their founding. If an association falls behind this build-up schedule, it must place 25 percent of net income into reserves each year, and if its reserve position falls below 5 percent after the twentieth year, 25 percent of net each year must go into reserves." *The Savings and Loan Business, op. cit.*, p. 75.

[20] There are several ways in which the Federal income tax may affect the portfolio choices of an individual. There may be a direct effect because the amount saved in a particular intermediary may not be counted as income, or because the return on the savings placed with particular intermediaries may be exempted from the income tax. There is also an indirect effect because of differences in the treatment of intermediary income under the corporate income tax. For an analysis, see E. Gordon Keith, "The Impact of Federal Taxation on the Flow of Personal Savings through Investment Intermediaries," in *Private Financial Institutions, op. cit.*, pp. 383-460.

[21] A study prepared by the American Bankers Association states: "Realistic costing of services rendered is neither as widespread nor as fully utilized as a basis for pricing in banking as it is in other industries. Tradition, rather than precise cost and profit computation, still plays an important part in determining both the amount and character of the remuneration received by banks for services rendered their customers." The American Bankers Association, *The Commercial Banking Industry*, Englewood Cliffs, N. J.: Prentice-Hall, 1962, p. 343.

small extent by the portfolio earnings of banks, which can affect only service charges.[22] A similar situation of inadequate pricing may exist in the insurance field, where the specialized function of selling insurance may be tied in with the general intermediary function of providing an outlet for savings funds. Finally, aside from tie-ins, there are other factors that may result in a poor pricing policy. These include the offering of services to encourage thrift or personal saving,[23] and the use of premiums and gifts to attract new accounts.[24] Tie-ins, free services, and gifts and premiums are forms of nonprice competition, and have in common a tendency to reduce the asset-holder's sensitivity to dividend or interest return. To this extent, they may interfere with the equilibrating mechanism.

Conclusions

The considerations summarized above are intended to illustrate some of the factors that produce a gap between the net earnings rate of the intermediaries and the rate of return—interest or dividend—paid to the saver. If the rate received by the saver is not closely tied to that paid by the borrower, and if the structure of, and spread among, dividend rates does not reflect the rates paid by the borrower, there is no mechanism to generate equilibrating portfolio shifts by asset-holders. Any maldistribution of funds among borrowers resulting from portfolio inflexibility of the financial intermediaries cannot, therefore, be corrected through portfolio shifts by savers in response to yield differentials. Moreover, a rise in investment demand, and in the rate earned by the intermediaries on their new investments, will not necessarily be reflected in dividends received by the public. Any equilibrating force that may be provided by such changes in the incentive to save is thus weakened.

Some of the factors that produce the gap between the intermediary earnings rate and the dividend received by the public may be diminished or eliminated by appropriate corrective legislation. Since portfolio shifts by savers are part of the equilibrating mechanism, correctives that reduce the gap would seem desirable.[25] Our analysis does, however, suggest that other factors are relatively intractable, and that the gap cannot therefore be entirely eliminated. For this reason, it would seem desirable to reduce some of the restrictions gradually, and to permit the intermediaries greater flexibil-

[22] Some of the factors responsible for prevalence of nonprice competition in bank services are analyzed by D. Carson and P. Cootner, "The Structure of Competition in Commercial Banking in the United States," in *Private Financial Institutions, op. cit.*, pp. 55-155. See also the related study by P. M. Horvitz on "Economies of Scale in Banking" in the same volume.

[23] "Mutual savings banks offer a wide variety of thrift services designed to achieve one essential motivating goal—the encouragement of thrift and personal saving. Consequently, some savings bank services do not pay their own way, but are intended rather to stimulate non-savers to save regularly in savings accounts." *Mutual Savings Banking, op. cit.*, p. 60.

[24] "The use of premiums and gifts to attract savings and loan accounts has been intensively used by many association managers during the past decade. The practice became so widespread during 1955, and so distasteful to most people in the savings and loan business, that the Federal Home Loan Bank Board was called on to adopt a regulation limiting giveaways to merchandise costing not more than $2.50 per account. There is little doubt among savings and loan practitioners that an appropriate premium, aggressively promoted, can bring in considerable funds for a savings association." *The Savings and Loan Business, op. cit.*, p. 34.

[25] For some specific proposals to remove the regulation of the interest rate paid on time and savings deposits at commercial banks, and to repeal the prohibition of interest payments on demand deposits, see M. Friedman: *A Program for Monetary Stability*, New York: Fordham University Press, 1960; C. Kreps and D. Lapkin: "Public Regulation and Operating Conventions Affecting Sources of Funds of Commercial Banks and Thrift Institutions," *Journal of Finance*, May 1962; and J. Tobin: "Towards Improving the Efficiency of the Monetary Mechanism," *Review of Economics and Statistics*, August 1960.

ity in their portfolio policies. In suggesting changes, it is of course necessary to keep in mind that there may be a conflict between the desire to increase the safety of the system, and the desire to provide greater flexibility for portfolio investment so as to increase the mobility of funds and provide better alternatives for both savers and borrowers. On balance, the analysis presented above suggests that desirable reforms should stress greater mobility for investment funds and equal opportunity for financial intermediaries to offer their services—reforms that would enable intermediaries to become less specialized in their investments.[26]

[26] For some specific recommendations along these lines, see *Money and Credit, op. cit.*, Chapter VI. See also the *Report of the Committee on Federal Credit Programs to the President of the United States,* 1963; the *Report of the Committee on Financial Institutions to the President of the United States,* 1963; and "National Banks and the Future," *Report of the Advisory Committee on Banking to the Comptroller of the Currency,* 1962.

►JOHN J. ARENA

Monetary Policy and Debt Management Revisited

I. *Introduction*

In a paper prepared for the Commission on Money and Credit, Arthur Okun presented some policy implications of a single equation model of Federal Reserve open market and Treasury debt management operations.[1] In that model, movements in bill and bond rates were explained by the following variables:

1. the potential money supply—the greater the supply, the lower are interest rates;
2. the stock of publicly held Federal debt classified by short, intermediate, and long-term maturity—the greater the stock of a maturity, the higher the interest rate;
3. the average maturity of Government bonds—the higher the average maturity, the higher are interest rates;
4. Gross Private Product (GNP less government wages and salaries)—the higher the level, the greater the demand for credit and the higher are interest rates;
5. potential GNP—the higher the potential GNP relative to actual, the less would be the demand for credit (slack in the economy) and the lower would be interest rates; and
6. quarters of the year to allow for seasonal credit demands, as at Christmas time.

John J. Arena is an Economist at the Federal Reserve Bank of Boston, and is currently on leave with the staff of the Council of Economic Advisers to the President. He wishes to express his sincerest thanks to Mrs. Mabelle Tucker for her extensive help in doing the data processing for this study.

[1] Arthur M. Okun, "Monetary Policy, Debt Management and Interest Rates: A Quantitative Appraisal," *Stabilization Policies,* Commission on Money and Credit, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963, pp. 331-380.

The results from the fitted equation were used to estimate the quantitative impacts upon the level and structure of interest rates of hypothetical policy changes.

The present paper re-examines the Okun model, using data over a longer time span, and presents the results both of the original Okun equations and of slight modifications in them. Primary attention is centered on the effects of certain hypothetical policy decisions on Treasury bond and bill rates, using the empirical findings. The recent advanced refunding operations of the Treasury receive particular emphasis. It is found that this much-heralded financial operation appears to have had little impact on rates because substantially larger operations would be required to change or "twist" the yield curve to any significant degree, although this was probably the intended result.

The conclusions derived are approximately the same as Okun's. The most important findings are that the equation coefficients and the resulting policy implications are relatively stable. However, in the recent period, market interest rates turned out to be lower than predicted from the equations.

I. *The Original Equations with Varying Time Spans*

Table 1 presents the regression results, using the same formats that were employed by Okun in the original paper. The equation numbers and the variable designations in the table are also the same as in the original paper. All coefficients are in units of whole percentage points; all dollar variables are in billions of dollars.

Four time periods were selected for the study and regressions were fitted to the data for each period:

1. 1946 (Q1)–1959 (Q4)–the original Okun time span;
2. 1946 (Q1)–1963 (Q4)–a longer time span which includes the latest available data (including those of Okun) at the time of processing;
3. 1951 (Q2)–1963 (Q4)–a span starting with the Treasury-Fed accord through the latest available data (to eliminate the earlier "pegging" activities of the Fed);
4. 1957 (Q1)–1963 (Q4)–a period of relatively large rate movements through a full business cycle.

The most notable feature of the statistical results of this table is perhaps the great consistency in the signs of the coefficients over the time periods selected, and the relative stability in coefficient size. The signs conformed to those postulated on an *a priori* basis, and the coefficients were statistically significant for most variables during most time spans. For conceptual reasons, however, slight changes in certain variables were made.

First, as in the original study, two measures of the potential money supply were used, M/R and $\frac{M\text{-}C}{R} + C$, where M is Federal demand debt (primarily member bank reserves plus currency), R is a weighted (country, city, or reserve-city) reserve requirement, and C is the currency outside the Government. Although both measures have the "correct" sign, the latter takes into account the drain caused by currency in circulation and is conceptually the preferable definition. Furthermore, the empirical results imply that the latter definition is more desirable since the coefficient (in equations 9 and 16) has statistically higher "t" values over the various time periods. For these reasons, only the latter definition is used in the work that follows.[2]

Second, the supply variables used for the composition of the outstanding Federal debt–S (Federal debt maturing in

[2] The simple M/R definition was examined in other regression formats, but the results again showed the coefficient estimates to have lower "t" values. Thus, to save space, the empirical results are not presented.

less than a year), I (Federal debt maturing from 1 to 5 years), and L (Federal debt maturing in more than 5 years)—seemed to weaken (and even reverse sign in one bill equation) in statistical significance, although the estimated coefficients would give about the same practical policy conclusions since estimates of rate movements would not be materially altered. As the time span varied from the original period, the "t" values fell, sometimes sharply, as can be seen in Table 1. Since only bill and bond rates were considered, Okun's original preference was to view the debt composition as if it consisted of two categories, short plus intermediaries (S + I) and longs (L). Such a grouping, however, seems hardly optimal if intermediate-term securities are viewed as closer substitutes for long-term securities than for short-term. The latter assumption is preferable here; therefore, the structure of the debt is split into short-term (S) and intermediate plus long-term (I + L) in the work that follows. A 5-year bond is viewed as a closer substitute for a 10- or 15-year bond than for a 90-day Treasury bill.

Finally, one change should be noted in the use of the variable (T) for the average maturity (in months) of the long-term debt. This variable was consistently significant and positive, implying that higher bond rates would result from a higher average maturity of long debt. This positive association is primarily attributed to the need to pay investors for the greater capital risk resulting from the longer maturity. But such an impact could be transmitted throughout the entire structure of rates and, consequently, be felt also in the short-term rates. Given the possibility of such an opportunity cost, this maturity variable is included not only in the equations of bond rates, but also in the equations of bill rates.

In conclusion, Table 1 presents the original Okun formats over four time periods. The coefficient estimates (with the exception, perhaps, of that of one money variable definition) are very stable in size and sign. The policy implications of these results are about the same as those in the original study, irrespective of the period examined; the policy issue is explicitly considered in Table 3. Slight modifications in formats have been made for conceptual reasons. The results are presented in Table 2.

II. *The Modified Equations with Varying Time Spans*

Table 2 contains the results of the equations with the slight format changes noted above. Again, all coefficients consistently have the "correct" sign. Most of them are statistically significant. Some statistical weaknesses do appear in the bill equations for the debt composition variables, particularly with data that do not include the late forties. Also, the R^2's are lower than in the original study over the various time periods. However, the over-all conclusions are still very close to the original Okun findings. The coefficients have varied very slightly, if at all; none changed sign. The relationships appear quite strong.

The most important result, however, lies in a comparison of the policy conclusions that can be drawn from the data in Tables 1 and 2 for these time periods. Table 3 contains the results of hypothetical policy decisions, using the regression results of those equations in Tables 1 and 2 which had $\frac{M\text{-}C}{R} + C$ for the money supply variable.[3] All numbers are in

[3] These results were adjusted for changes in member bank borrowing (B) and for currency changes (C). Member bank borrowing would affect the potential money supply and consequently the bill rate. Regressions of the following form—$B = \phi_1 + \phi_2 b + \phi_3 d$—were fitted for each time period (b is the bill rate, d is the discount rate) and the results in Table 3 reflect this adjustment.

A somewhat similar adjustment was made for currency, again fitting regression equations of

whole percentage points. The original Okun material is marked with an asterisk. (Some slight differences were noted when the Okun material was recomputed, probably because of later data revisions. Results using revised data are presented here.)

Open market sales of $1 billion of bills (Step A) have a much more pronounced tightening impact on the bill rate than on the bond rate. On average, the bill rate increases by approximately 40 to 45 basis points, while the bond rate increases by only 9 to 11 basis points. Interestingly enough, the most notable characteristic of the hypothetical action is the great similarity in results, regardless of the equation format or time span selected. This implies that the original Okun results were fairly stable.

The sale of a billion dollars of 20-year bonds (Step B) had results very similar to those arising from the sale of bills. Again, on average, the bill rate increases by approximately 40 to 45 points, while the bond rate increases by only 9 to 12 points, thus implying a fairly stable relationship. The concern for "bills only" still seems overemphasized, as Okun originally pointed out.

An increase or decrease in reserve requirements (Steps C and D, as there is slight asymmetry here due to the equation specification) will have their expected tightening or easing impact on rates with the bill rate again showing much greater movement. This bill rate moves in the range of approximately 50 to 70 basis points, plus or minus, while the bond rate seems to move by only 9 to 13 basis points, plus or minus.

A Treasury refunding operation, or a Fed switching operation, whereby a 20-year bond is exchanged for a 5-year bond (Step E) has a clear tightening impact, since the average maturity of the outstanding publicly held Federal debt has been lengthened. In the original Okun formats, the bill rate could not be affected by the action, but by the addition of the maturity variable to the bill equation (16b) the tightening impact of such a refunding is felt in the bill rate as well as in the bond rate. However, it should be noted that the net change in rates is quantitatively very small! The bill rate rises by only 2 to 4 basis points and the bond rate by only 1 to 6 basis points. To materially change rates through debt management techniques would require massive quantities of debt supply shifts.

Step F is another switching operation that in effect combines Steps A and B. For the bond equation, the results are the same as Okun's. In the bill equation, however, slight differences occur. Even though bills were taken out of the market, an act that would imply a decline in the bill rate, the rise in the average maturity of bonds has a sufficient tightening impact on the bill rate to more than offset the decline, thereby resulting in a slight net rise in the bill rate, as seen in the table under equation format 16b. This is the only instance of disagreement with Okun's results and it is minor, considering the small size of expected bill rate change. Slight changes in the regression coefficients of equation 16b could easily have resulted in negative signs on bill rates in Step F of Table 3. The net shifts were again quite small. On average, the bill rate rises at most by a basis point or two and the bond rate by only 1 to 5 basis points.

An increase in Y of one billion dollars (Step G) has a very consistent tightening impact on rates. The bill rate rises by about 5 basis points and the bond rate by only one basis point. Again, the original Okun results are very stable.

A rise in the discount rate of one point has a consistent tightening impact, with bills showing the greater movement. The results over the different time periods show greater relative variation than in

---

the form $C = g_1 + g_2 Y$ for each period. For more specific information, see Okun, *op. cit.*, pp. 358-360.

other hypothetical cases. This action is quantitatively strong, with the bill rate increasing by approximately 20 to 30 basis points and the bond rate by only 5 or 6 basis points. Nevertheless, the Okun results remain fairly firm.

All in all, given the slight changes in format and the different time spans, the Okun model of debt management and Federal Reserve operations warrants very close attention in terms of its coefficient stability and its policy implications.

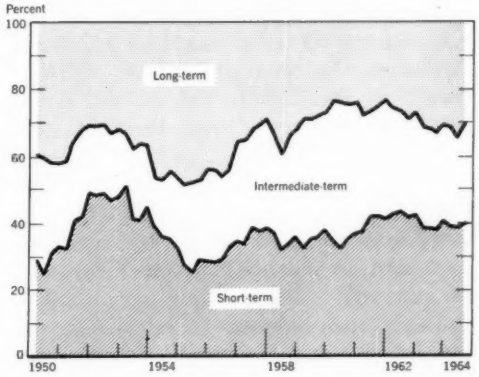
III. *Treasury Advance Refunding*

One striking feature of the results above is the rather *large* volume of security transactions that would be needed for Treasury switching or advance refunding operations to have a material impact on either the bond or bill rate. A switch, say of bonds for bills, has nowhere near the impact on rates as would an out-and-out sale of bills, for example. This raises some questions about the quantitative impacts of the advance refunding activities of the Treasury in regard to rate impact. Even though the announced volume of security transactions is often large in dollar value, the net changes in the stocks of the debt components have amounted to only a few billion dollars at most, a size which would affect bond and bill rates by only several basis points.

What seems to have happened is that the advance refunding attempts of the Treasury were focused more on the debt composition; rate impact was to be avoided or was secondary. The advance refundings seem to have been more *defensive* in nature (i.e., attempting roughly to maintain the percentage distribution of the outstanding debt) rather than *aggressive* in nature (i.e., attempting to shift materially the outstanding percentage distribution). The chart presents the percentage distribution of the outstanding debt from 1950 through 1964, and it seems that there has been little change in the past few years in the relative share of each major type of security.

Chart

Percentage Distribution of Three Classes of Maturity of Publicly-held Government Debt



Source: See Data Appendix, columns 6, 7 and 8, and sources for Data Appendix

IV. *Some Forecasting Results*

Using the results obtained in Tables 1 and 2, estimated values for the two interest rates were generated through 1964. These forecasts showed one consistent factor—the estimated values *exceeded* the actual values both in bond and bill rates, particularly in using the original Okun equations which stopped with 1959 data. Table 4 contains a summary of the forecasting results. In all the bond rate equations, the estimated value always exceeded the actual value. A similar result occurred for most of the bill rate equations.[4]

If the equations were so stable, why do they seem to give such biased predictions? One very simple answer is that the use of such time series data has introduced a large element of serial correlation

[4] The linear nonnormalized form of the equation (which was used for the regression estimates) could result in high predicted interest rates. In such an equation, a doubling in absolute value of all exogenous variables would lead to a doubling of the interest rate. Since there is an upward movement in the absolute dollar value of the independent variables over time, this could impart an upward forecast in interest rates. Normalization through dividing by some dollar variable, such as potential GNP, could perhaps eliminate this upward bias; however, because of time and space considerations, this adjustment was not made.

into the estimates, so that the forecasts are not very reliable. This problem is considered briefly in the discussion of first difference equations below.

Another explanation could be a shift in parameters or in the structure of the money market. With the recent large growth of commercial bank time deposits (particularly CD's), member bank reserves could support a higher volume of credit even though the money supply, as conventionally defined, had not changed markedly. In essence, the coefficient on the potential money supply variable has probably been reduced; therefore, a given level of this variable would imply lower interest rates in 1965 than would have been the case in an earlier period. This explanation was not empirically examined, but it is quite plausible and merits consideration.

V. *Supplemental Note*

Some supplementary work was done to test the stability of the equation coefficients. Specifically, an addition of a time variable to the equation was made, primarily to test the coefficient stability of Y; and first differences of the equation were examined—hopefully to eliminate some of the serial correlation which usually results from the use of quarterly time series data. This latter step appeared to be somewhat successful, since the Durbin-Watson statistics greatly improved. This supplementary work used the modified Okun equations for bill and bond rates over just two time periods, since the prior tables implied fairly strong stability of coefficients regardless of the time span selected.

The addition of the time variable did little to the original equation coefficients. Y was still a highly significant variable. Sign, coefficient size, and significance were not materially changed. The linear time trend variable itself was not significant in terms of a longer linear pattern —the sign and significance varied between bill and bond rates and between time periods.

The first difference equations were also lacking a great effect on the bill rate equations. Signs were the same, although some coefficients and "t" values changed (both increasing and decreasing). Naturally the R^2's fell.

The bond rate equations, however, did show a more marked change. The signs on the coefficients (except on the long-term composition variable) did not change, but the "t" values fell very greatly for the money and debt composition variables. The average debt maturity and Y variables remained about the same in size and significance.

No additional work was done with this information. The equations were not refitted omitting these variables, nor were the results of the hypothetical policy actions recalculated. Since, in terms of absolute movement, the bond rate appears to be relatively more insensitive to the outlined policy actions, and since the bill equation remained firm, it is still concluded that the Okun model is a fairly good one for estimating the quantitative impacts of policy actions.

The model, however, possesses difficulties of the single equation system, as Okun himself noted. For example, the model makes no assumption about the possibility of interest rate changes affecting Y which, in turn, is treated as an exogenous variable in both rate equations. Also, the model should be further modified to take account of recent possible structural changes in the money market, and it should perhaps be normalized to give better forecasts. The results, nevertheless, are promising and would warrant more work along the lines suggested.

Appendix

DATA

Year	Quarter	(1) Yield on Short-term U.S. Gov't bills %	(2) Yield on Long-term U.S. Gov't Bonds %	(3) Currency Outside Gov't ($ Billions)	(4) Federal Demand Debt ($ Billions)	(5) Required Reserve Ratio
1957	1	3.140	3.26	30.585	49.829	.170
	2	3.316	3.58	31.082	50.238	.170
	3	3.578	3.66	31.073	50.705	.170
	4	3.102	3.30	31.834	50.968	.170
1958	1	1.354	3.25	30.666	49.842	.163
	2	.881	3.19	31.172	50.645	.154
	3	2.484	3.75	31.245	50.045	.154
	4	2.814	3.80	32.193	51.360	.154
1959	1	2.852	3.92	31.250	50.137	.154
	2	3.247	4.09	31.914	50.211	.154
	3	3.998	4.26	31.848	50.368	.154
	4	4.572	4.27	32.591	52.108	.154
1960	1	3.439	4.08	31.633	50.163	.154
	2	2.641	3.99	32.065	50.928	.154
	3	2.489	3.82	32.022	51.480	.153
	4	2.272	3.88	32.869	53.301	.152
1961	1	2.420	3.78	31.891	51.323	.152
	2	2.359	3.88	32.405	52.385	.152
	3	2.304	4.02	32.658	52.686	.152
	4	2.617	4.06	33.918	54.768	.152
1962	1	2.719	4.01	33.018	52.915	.152
	2	2.719	3.90	33.770	54.173	.152
	3	2.792	3.94	33.893	54.327	.152
	4	2.856	3.87	35.338	56.697	.152
1963	1	2.897	3.93	34.513	54.252	.152
	2	2.995	4.00	35.470	55.552	.152
	3	3.379	4.04	35.891	55.926	.152
	4	3.523	4.14	37.692	59.302	.152

Note: Data presented here include only revisions and extensions of Okun's original data. Variables are presented in units used in regression equations. For explanation of the dummy quarterly seasonal variable, Q_1, Q_2 and Q_3, used in the bill rate equations, see Okun, *op. cit.*, p. 347.

Sources for Data Appendix

Column (1)

Yield on short-term U. S. Government bills, percent per annum. Source: *Federal Reserve Bulletin;* Section and Table entitled "Interest Rates: Money Market Rates".

Yield on new 3-month bills issued within the period, for the last month in the quarter.

Column (2)

Yield on long-term U. S. Government bonds, percent per annum. Source: *Federal Reserve Bulletin;* Section and Table entitled "Interest Rates: Bond and Stock Yields".

Averages of daily figures (computed from closing bid quotations on the over-the-counter market) for bonds maturing or callable in 10 years or more, for the last month in the quarter.

Column (3)

Currency outside the government, in billions of dollars. Source: *Federal Reserve Bulletin;* Section and Table entitled "U. S. Currency: Kinds Outstanding and in Circulation".

Currency in circulation outside the Treasury and the Federal Reserve Banks at the end of the last month in the quarter.

Column (4)

Federal demand debt, in billions of dollars.

Computed as the sum of 3 items:

(a) Total member bank reserves, in billions of dollars, (including coin and currency allowable as reserves after December 1, 1959), as of the end of the last month in the quarter. Source: *Federal Reserve Bulletin;* Section and Table entitled "Bank Reserves and Related Items: Member Bank Reserves, Federal Reserve Bank Credit, and Related Items".

(b) Other deposits in Federal Reserve Banks, in billions of dollars: Sum of "Foreign Deposits" and "Other Deposits", as of the end of the last month in the quarter.

Source: *Federal Reserve Bulletin;* Section and Table entitled "Federal Reserve Banks: Consolidated Statement of Condition".

(c) Currency outside the government, in billions of dollars. See Col. (3) above.

Column (5)

Required reserve ratio of member banks, percent.

Source: *Federal Reserve Bulletin;* Section and Table entitled "Reserve Requirements: Reserve Requirements of Member Banks".

Reserve requirements index computed as weighted average of reserve requirements on net demand deposits for central reserve city banks (weight of .32), reserve city banks (.40) and country banks (.28), as of the end of the last month in the quarter.

Columns (6) through (8)

U. S. Government debt, par value in billions of dollars. Source: *Federal Reserve Bulletin;* Section and Table entitled "U. S. Government Securities: Ownership of Marketable Securities, by Maturity".

All marketable direct public securities held by the public (excluding those held by U. S. Government agencies and trust funds and The Federal Reserve Banks), classified according to maturity, as of the end of the last month in the quarter.

APPENDIX

(6) Short-term U.S. Gov't Debt ($ Billions)	(7) Intermediate-term U.S. Gov't Debt ($ Billions)	(8) Long-term U.S. Gov't Debt ($ Billions)	(9) Mean Maturity of Long-term U.S. Gov't Debt (Months)	(10) Gross Private Product ($ Billions)	(11) Potential Gross National Product ($ Billions)
45.700	40.875	44.975	150.3	399.1	438.5
49.649	37.293	40.237	157.4	402.2	443.5
50.395	41.843	40.211	154.1	407.6	452.6
51.705	43.334	38.576	159.0	401.6	456.5
50.045	38.276	44.420	155.7	391.1	464.8
43.873	38.492	52.226	148.0	394.3	484.8
45.584	45.482	45.016	157.4	403.0	494.2
50.900	46.741	44.977	154.4	416.3	496.0
47.168	54.920	41.843	160.6	427.3	499.2
51.341	51.253	42.389	157.2	442.6	505.0
54.194	52.917	42.345	157.2	437.1	502.8
58.765	53.176	42.285	150.5	442.6	513.5
54.711	61.812	35.955	141.7	453.5	519.6
48.527	64.472	36.547	141.9	456.3	525.1
53.297	60.566	37.541	140.5	454.5	529.3
57.125	59.155	37.234	151.7	452.4	539.1
57.703	51.398	42.423	136.0	451.0	546.3
63.287	47.924	40.182	137.4	462.7	563.2
65.151	51.404	39.186	147.8	470.2	569.2
65.526	55.763	37.311	151.4	483.3	576.4
67.843	49.463	41.018	146.8	490.8	573.4
68.073	47.378	41.967	142.2	498.3	580.0
66.047	46.686	46.049	133.7	503.3	587.6
67.952	49.381	45.219	128.7	509.8	595.6
62.056	49.231	50.762	128.7	514.0	604.7
61.955	48.073	50.333	129.5	518.9	610.7
62.296	45.424	52.785	129.7	527.8	615.4
64.979	47.919	49.191	132.2	537.7	631.6

Column (6)

Short-term U. S. Government debt: securities maturing within 1 year.

Column (7)

Intermediate-term U. S. Government debt: securities maturing within 1 to 5 years.

Column (8)

Long-term U. S. Government debt: securities maturing in 5 years or more.

Column (9)

Mean maturity of long-term U. S. Government debt, in months.

Source: *Federal Reserve Bulletin*; Section and Table entitled "U. S. Government Securities: Ownership of Marketable Securities, by Maturity".

Mean number of months to maturity of all marketable direct public securities with maturing dates 60 or more months away: computed as of the end of the last month in the quarter as a weighted average of months to maturity of securities maturing in 5 to 10 years, (90 months) and of those maturing in 10 years or more, (192 months) the weights being the amounts outstanding in each category. Note: It was not possible to reproduce exactly Okun's series by this method; however, the differences were not large and the two series moved together.

Column (10)

Gross Private Product, seasonally adjusted quarterly totals at annual rates, in billions of current dollars.

Gross Private Product is Gross National Product less government, civilian and military wages and salaries.

Gross National Product, seasonally adjusted quarterly totals at annual rates, in billions of current dollars.

Source: *Survey of Current Business*, July 1962, Tables 1, 2, p. 7 (1957–1958); July 1964, Tables 1, 2, p. 9 (1959–1963).

Government civilian and military wages and salaries, seasonally adjusted quarterly totals at annual rates, in billions of current dollars.

Source: *Ibid.*

Column (11)

Potential Gross National Product at full-employment level, seasonally adjusted quarterly totals at annual rates, in billions of current dollars.

This variable reflects the level of output, in addition to actual output, which would have been achieved at full-employment (taken to be a 4 percent rate of unemployment), computed by the following formula:

$$P = \text{Actual GNP} \cdot [1 + .032 (\text{Actual Unemployment Percentage} - 4.0)].$$

Actual Gross National Product, seasonally adjusted quarterly totals at annual rates, in billions of current dollars.

Source: *Ibid.*

Actual unemployment as a percentage of the civilian labor force, seasonally adjusted, average of the 3 months in the quarter.

Source: U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Report on the Labor Force*, January 1964, p. 34.

Table 1.—Regression equations of bond and bill

Equation No.	Dependent Variable	Time Period	Type of Money Variable	"Money"	S + I	L
8	r	1946–1959 N = 56	M/R	−.0066 (.0021) −3.05	.0219 (.0042) 5.25	.0197 (.0029) 6.69
8	r	1946–1963 N = 72	M/R	−.0039 (.0024) −1.62	.0164 (.0040) 4.14	.0074 (.0028) 2.64
8	r	1951–1963 N = 51	M/R	.0009 (.0032) .28	.0092 (.0088) 1.04	−.0070 (.0119) −.59
8	r	1957–1963 N = 28	M/R	−.0046 (.0041) −1.12	.0338 (.0114) 2.96	.0341 (.0186) 1.84
9	r	1946–1959 N = 56	$\frac{M\text{-}C}{R} + C$	−.0127 (.0058) −2.17	.0168 (.0037) 4.52	.0141 (.0022) 6.28
9	r	1946–1963 N = 72	$\frac{M\text{-}C}{R} + C$	−.0155 (.0054) −2.86	.0155 (.0033) 4.64	.0056 (.0020) 2.86
9	r	1951–1963 N = 51	$\frac{M\text{-}C}{R} + C$	−.0163 (.0064) −2.54	.0212 (.0079) 2.68	.0075 (.0105) .72
9	r	1957–1963 N = 28	$\frac{M\text{-}C}{R} + C$	−.0155 (.0068) −2.27	.0356 (.0093) 3.79	.0355 (.0148) 2.40
15	b	1946–1959 N = 56	M/R	−.0218 (.0064) −3.41	.0601 (.0069) 8.70	.0342 (.0066) 5.18
15	b	1946–1963 N = 72	M/R	−.0095 (.0084) −1.14	.0264 (.0078) 3.37	.0061 (.0074) .82
15	b	1951–1963 N = 51	M/R	−.0029 (.0168) −.17	−.0143 (.0259) −.55	−.0370 (.0317) −1.17
15	b	1957–1963 N = 28	M/R	−.0231 (.0253) −.91	.0861 (.0385) 2.23	.1266 (.0618) 2.05
16	b	1946–1959 N = 56	$\frac{M\text{-}C}{R} + C$	−.0705 (.0152) −4.64	.0431 (.0064) 6.73	.0181 (.0041) 4.41
16	b	1946–1963 N = 72	$\frac{M\text{-}C}{R} + C$	−.0886 (.0167) −5.30	.0184 (.0064) 2.89	.0034 (.0042) .80
16	b	1951–1963 N = 51	$\frac{M\text{-}C}{R} + C$	−.1006 (.0244) −4.13	.0065 (.0210) .31	−.0048 (.0240) −.20
16	b	1957–1963 N = 28	$\frac{M\text{-}C}{R} + C$	−.0748 (.0349) −2.14	.0719 (.0324) 2.22	.1018 (.0498) 2.05

Standard error of the coefficient is in parentheses below the coefficient. The "t" statistic is below standard error.

rates—original Okun formats, varying time periods

Coefficients							
T	Y	P	Constant	Q_1	Q_2	Q_3	R^2
.0046 (.0023) 1.99	.0105 (.0014) 7.45		−2.21				.935
.0009 (.0024) .38	.0061 (.0014) 4.46		.1578				.932
.0065 (.0038) 1.68	.0054 (.0017) 3.14		−.5560				.918
.0168 (.0057) 2.93	.0020 (.0026) .79		−3.01				.736
.0045 (.0024) 1.84	.0096 (.0014) 6.87		−1.31				.929
.0005 (.0023) .21	.0067 (.0013) 5.31		1.25				.937
.0064 (.0036) 1.79	.0061 (.0015) 4.01		.1425				.928
.0161 (.0052) 3.08	.0021 (.0023) .90		−2.30				.774
	.0345 (.0042) 8.21	−.0161 (.0048) −3.35	−3.65	−.43 (.14) −3.07	−.31 (.13) −2.38	−.09 (.13) −.69	.916
	.0328 (.0053) 6.14	−.0202 (.0060) −3.37	−1.06	−.27 (.18) −1.50	−.27 (.17) −1.62	−.08 (.16) −.51	.826
	.0433 (.0079) 5.49	−.0239 (.0097) −2.46	.0972	−.32 (.28) −1.16	−.43 (.25) −1.73	−.12 (.23) −.51	.706
	.0355 (.0104) 3.41	−.0348 (.0140) −2.48	−1.17	−.75 (.42) −1.80	−.52 (.34) −1.55	−.24 (.35) −.69	.665
	.0363 (.0038) 9.55	−.0160 (.0040) −4.00	1.69	−.58 (.14) −4.14	−.50 (.14) −3.57	−.21 (.12) −1.75	.928
	.0321 (.0044) 7.31	−.0106 (.0046) −2.31	6.33	−.74 (.17) −4.44	−.69 (.16) −4.36	−.39 (.14) −2.73	.877
	.0344 (.0065) 5.33	−.0088 (.0063) −1.39	7.92	−.86 (.22) −3.91	−.86 (.21) −4.09	−.47 (.19) −2.46	.791
	.0322 (.0091) 3.55	−.0272 (.0114) −2.39	3.14	−.92 (.33) −2.80	−.71 (.31) −2.30	−.40 (.30) −1.34	.718

Table 2.—Regression equations of bond and bill

Equation No.	Dependent Variable	Time Period	Type of Money Variable	"Money"	S	I + L	
9a	r	1946–1959 N = 56	$\frac{M-C}{R}+C$	−.0132 (.0054) −2.42	.0202 (.0034) 5.95	.0124 (.0021) 6.00	
9a	r	1946–1963 N = 72	$\frac{M-C}{R}+C$	−.0153 (.0057) −2.68	.0122 (.0038) 3.24	.0064 (.0022) 2.94	
9a	r	1951–1963 N = 51	$\frac{M-C}{R}+C$	−.0198 (.0070) −2.85	.0274 (.0088) 3.12	.0239 (.0082) 2.92	
9a	r	1957–1963 N = 28	$\frac{M-C}{R}+C$	−.0133 (.0066) −2.03	.0259 (.0101) 2.56	.0366 (.0081) 4.54	
16a	b	1946–1959 N = 56	$\frac{M-C}{R}+C$	−.0918 (.0171) −5.38	.0216 (.0081) 2.66	.0205 (.0052) 3.95	
16a	b	1946–1963 N = 72	$\frac{M-C}{R}+C$	−.1001 (.0170) −5.90	.0081 (.0080) 1.01	.0058 (.0048) 1.23	
16a	b	1951–1963 N = 51	$\frac{M-C}{R}+C$	−.1098 (.0238) −4.61	.0078 (.0224) .35	.0090 (.0211) .43	
16a	b	1957–1963 N = 28	$\frac{M-C}{R}+C$	−.0727 (.0370) −1.97	.0476 (.0335) 1.42	.0477 (.0283) 1.69	
16b	b	1946–1959 N = 56	$\frac{M-C}{R}+C$	−.0658 (.0168) −3.93	.0279 (.0074) 3.76	.0199 (.0046) 4.30	
16b	b	1946–1963 N = 72	$\frac{M-C}{R}+C$	−.0909 (.0175) −5.19	.0091 (.0079) 1.16	.0046 (.0047) .97	
16b	b	1951–1963 N = 51	$\frac{M-C}{R}+C$	−.1006 (.0246) −4.09	.0068 (.0223) .30	.0095 (.0210) .45	
16b	b	1957–1963 N = 28	$\frac{M-C}{R}+C$	−.0704 (.0378) −1.86	.0430 (.0351) 1.23	.0455 (.0291) 1.56	

Standard error of the coefficient is in parentheses below the coefficient. The "t" statistic is below standard error.

rates—modified Okun formats, varying time periods

Coefficients							
T	Y	P	Constant	Q_1	Q_2	Q_3	R^2
.0061 (.0015) 4.01	.0099 (.0009) 11.35		−1.47				.937
.0048 (.0018) 2.67	.0090 (.0009) 9.59		.1540				.932
.0132 (.0025) 5.24	.0070 (.0016) 4.46		−1.89				.919
.0176 (.0049) 3.60	.0033 (.0023) 1.46		−2.94				.787
	.0362 (.0046) 7.92	−.0097 (.0044) −2.21	3.97	−.76 (.16) −4.68	−.69 (.16) −4.42	−.34 (.14) −2.39	.896
	.0315 (.0046) 6.84	−.0065 (.0045) −1.45	7.38	−.84 (.17) −4.97	−.79 (.16) −5.00	−.47 (.15) −3.22	.865
	.0344 (.0066) 5.21	−.0076 (.0064) −1.19	8.00	−.93 (.22) −4.28	−.91 (.21) −4.34	−.52 (.19) −2.71	.783
	.0335 (.0097) 3.46	−.0234 (.0115) −2.03	4.99	−.87 (.34) −2.57	−.72 (.32) −2.24	−.52 (.31) −1.25	.693
.0127 (.0035) 3.66	.0406 (.0042) 9.58	−.0145 (.0041) −3.54	−1.73	−.57 (.15) −3.74	−.51 (.15) −3.49	−.23 (.13) −1.79	.920
.0069 (.0039) 1.77	.0338 (.0047) 7.17	−.0085 (.0045) −1.86	4.95	−.76 (.17) −4.36	−.72 (.16) −4.44	−.42 (.15) −2.84	.872
.0082 (.0063) 1.31	.0351 (.0066) 5.34	−.0084 (.0064) −1.31	5.44	−.86 (.22) −3.83	−.86 (.21) −4.05	−.47 (.19) −2.45	.792
.0096 (.0169) .57	.0353 (.0103) 3.42	−.0229 (.0118) −1.94	2.61	−.82 (.36) −2.29	−.69 (.34) −2.05	−.37 (.32) −1.14	.698

Table 3.—Estimated effects on bond rate (r) and bill rate (b) of hypothetical policy actions using alternative equations and four different time periods

Adjusted for estimated changes in borrowings and currency
(Percentage Point Change)

Example	Time Period Covered	Estimated Change				
		in r		in b		
		Equation 9	Equation 9a	Equation 16	Equation 16a	Equation 16b
A. An open market sale of $1 billion of bills, notes, or other short-term issues	1946–1959 N = 56	+.083*	+.086	+.410*	+.479	+.377
	1946–1963 N = 72	+.091	+.085	+.448	+.481	+.449
	1951–1963 N = 51	+.098	+.119	+.480	+.511	+.430
	1957–1963 N = 28	+.115	+.094	+.453	+.424	+.411
B. An open market sale of $1 billion of 20-year bonds	1946–1959 N = 56	+.090*	+.091	+.389*	+.478	+.392
	1946–1963 N = 72	+.083	+.089	+.437	+.479	+.457
	1951–1963 N = 51	+.098	+.143	+.472	+.512	+.495
	1957–1963 N = 28	+.147	+.142	+.477	+.424	+.430
C. A rise in reserve requirements by one percentage point	1946–1959 N = 56	+.080*	+.079	+.466*	+.549	+.421
	1946–1963 N = 72	+.101	+.097	+.580	+.634	+.591
	1951–1963 N = 51	+.103	+.122	+.634	+.675	+.634
	1957–1963 N = 28	+.109	+.094	+.527	+.515	+.502
D. A decline in reserve requirements by one percentage point	1946–1959 N = 56	−.092*	−.090	−.507*	−.626	−.479
	1946–1963 N = 72	−.115	−.110	−.661	−.722	−.673
	1951–1963 N = 51	−.117	−.139	−.723	−.769	−.723
	1957–1963 N = 28	−.124	−.107	−.601	−.587	−.572
E. Retirement of $1 billion of 5-year bonds and simultaneous issue of $1 billion of 20-year bonds	1946–1959 N = 56	+.019*	+.026	0*	0	+.046
	1946–1963 N = 72	+.002	+.018	0	0	+.019
	1951–1963 N = 51	+.024	+.049	0	0	+.022
	1957–1963 N = 28	+.060	+.065	0	0	+.029
F. Retirement of $1 billion of bills or certificates and simultaneous issue of $1 billion of 20-year bonds	1946–1959 N = 56	+.008*	+.005	−.021*	−.001	+.016
	1946–1963 N = 72	−.008	+.004	−.011	−.001	+.007
	1951–1963 N = 51	.000	+.024	−.008	+.001	+.014
	1957–1963 N = 28	+.033	+.048	+.024	.000	+.019
G. A rise in Y of $1 billion	1946–1959 N = 56	+.011*	+.011	+.044*	+.046	+.047
	1946–1963 N = 72	+.009	+.011	+.043	+.044	+.045
	1951–1963 N = 51	+.009	+.010	+.049	+.051	+.050
	1957–1963 N = 28	+.005	+.006	+.047	+.048	+.049
H. A rise in the discount rate by one percentage point	1946–1959 N = 56	+.025*	+.026	+.140*	+.182	+.131
	1946–1963 N = 72	+.052	+.051	+.296	+.335	+.304
	1951–1963 N = 51	+.056	+.068	+.347	+.378	+.347
	1957–1963 N = 28	+.032	+.028	+.155	+.151	+.146

* Okun Results—occasional slight differences were detected from those in the original study on page 361, *op. cit.* The recomputed results are presented in this table.

Table 4.—Predicting bond and bill rates using coefficients of Tables 1 and 2

Equation Number	Dependent Variable	Time Period used to Compute Coefficients	Estimates made beyond Time Period used to compute Coefficients			
			Number of Quarters Estimated	Number of Quarters Underestimated (+Residual)	Number of Quarters Overestimated (−Residual)	Average Residual
BOND YIELDS						
9	r	1946–1959	20	0	20	−.5421
9	r	1946–1963	4	0	4	−.1444
9a	r	1946–1959	20	0	20	−.5262
9a	r	1946–1963	4	0	4	−.3193
BILL RATES						
16	b	1946–1959	20	0	20	−1.1191
16	b	1946–1963	4	4	0	+.3591
16b	b	1946–1959	20	0	20	−1.1913
16b	b	1946–1963	4	2	2	+.1091

Symbols for Tables

b = Yield on short-term U.S. Government bills of period t
r = Yield on long-term U.S. Government bonds of period t
C = Currency outside the government of period t
M = Federal demand debt of period t (primarily member bank reserves and currency)
R = Required reserve ratio of period t
S = Short-term U.S. Government debt of period t
I = Intermediate-term U.S. Government debt of period t
L = Long-term U.S. Government debt of period t
T = Mean maturity of long-term U.S. Government debt of period t
Y = Gross Private Product of period t
P = Potential Gross National Product of period t
Q_1, Q_2, Q_3 = Quarterly seasonal variable
N = Number of observations

►ROBERT A. MUNDELL

The Proper Division of the Burden of International Adjustment

The efficiency of the international adjustment mechanism is intimately bound up with the distribution of the burden of adjustment between deficit and surplus countries. To what extent should surplus countries expand; to what extent should deficit countries contract? The purpose of this paper is to explore theoretical criteria on which an appropriate division of the burden of adjustment can be based.

I. *The Internal Stability Criterion*

A conventional criterion emphasizes the state of internal balance in the deficit and surplus countries. When the deficit countries are inflating and the surplus countries are depressed, internal and external balance both require contraction in the deficit countries and expansion in the surplus countries. Thus Italy, in 1963-1964, was inflating considerably beyond the call of external equilibrium, and corrected appropriately (though perhaps too aggressively) through financial contraction. Similarly, Germany, in 1959, had a mild recession and a continuing surplus, and expanded appropriately.

When there is a general depression throughout the world, both surplus and deficit countries should expand, but the responsibility for the initiative, unless international reserves are very large or unevenly distributed in favor of the deficit countries, rests with the *surplus* countries because they are in the best position to expand. Thus, after 1934, the United States had a substantial gold inflow when the Free World was in a state of depres-

Robert A. Mundell, Rockefeller Foundation Visiting Research Professor of International Economics at The Brookings Institution, is grateful to Harry Johnson, Walter Salant, and Lawrence Krause for helpful comments. Responsibility rests solely with the author.

sion, and responsibility rested with the United States to initiate recovery (in which it had only modest success).

When there is general world inflation, both surplus and deficit countries should contract. The responsibility for initiating restrictive measures in this case, however, rests with the *deficit* countries, since restrictive financial policies will promote internal and external balance in the deficit countries whereas they are in opposition to external balance in the surplus countries. Thus, in the early postwar period, when both America and Europe were confronted with substantial inflationary pressure, restrictive financial policies should have commenced first in Europe.

In the cases above, there is a harmony of interests under fixed exchange rates according to the internal stability criterion. But this harmony breaks down in situations where the deficit countries are depressed and the surplus countries are inflating. Under those conditions, restrictive financial measures in the deficit countries might improve the external balance, but only at a cost of worsening the domestic depression, and expansionary measures in the surplus countries would promote balance of payments equilibrium, but only at the expense of aggravating the domestic inflation. This is, by and large, the problem that confronted France, Holland, Germany, and Switzerland, on the one hand, and the United States, on the other, in the years 1959-1964.

It should not be thought that the exception we have recently experienced, where the internal stability criterion broke down, is an unusual case. Indeed, in the days of the gold standard, this was considered the normal case. Gold flows from deficit countries promoted deflation or depression, and gold flows into surplus countries promoted inflation. This very mechanism was the method through which equilibrium was restored. It is also the form toward which each of the other disequilibrium conditions gravitates as the appropriate corrective policies are implemented.

II. *The Relative Cost Criterion*

At this point, a "relative cost criterion" might be invoked to supplement the internal stability criterion where surplus countries are already inflating and deficit countries are already depressed. There is a cost to higher inflation rates in surplus countries, and a cost to continued depression in deficit countries; but the costs are presumed to be measurable, at least in principle. What is the cost to Europe of a continued inflation rate of, say, 4 percent per year compared to the cost of depression in the U.S. reflected in an excess unemployment rate (i.e., an unemployment rate exceeding the rate of frictional unemployment) of perhaps 1 or 2 percent of the labor force? Adjustment, it might be argued, should take place in the surplus countries if the cost of inflation is less than the waste from unemployment and, vice versa, if the inflationary solution is more costly. If we make the reasonable assumption that the economic waste from unemployment and inflation increases sharply as these become more serious, this criterion would probably suggest some excess unemployment in the deficit countries and some inflation in the surplus countries.

But is this criterion very useful in determining the appropriate distribution of the burden of adjustment? There are both theoretical and practical problems suggesting that it is not.

In the first place, the science of measuring waste is still in its infancy and it is unlikely that any methods thus far advanced to measure the cost of unemployment and the cost of inflation could possibly be accurate enough for determining the relative cost of unemployment in one group of countries and inflation in another group of countries. One way of measuring the cost of unemployment is to calculate what Gross National Product

would have been in its absence, making rough guesses about productivity and the potential, compared to the actual, size of the labor force, but it is difficult to make an appropriate allowance for leisure and for the fact that the burden of unemployment typically falls on the poorer members of society (who are usually least able to bear it). On the other hand, the cost of inflation is practically impossible to measure in a precise way, given our present tools, and quantitative studies (except one study assuming that the inflation rate is constant and anticipated with certainty by the general public) have not even been attempted. How can the cost of disrupting deep-rooted social expectations ever be measured?

The difficulty of measuring the costs of unemployment and inflation might alone render the relative cost criterion useless. But it can also be argued that the asymmetry between inflation and unemployment is misplaced. Why not *deflation* instead of unemployment? The problem lies in the downward rigidity of the level and structure of wage rates and, to a lesser extent, other costs. But if deflation implies a smaller cost to the economy than does unemployment, should surplus countries experience the additional discomfort of further inflation because deficit countries have failed to resolve a basic institutional problem? Whatever the justice of it—and I do not have the answer—this argument has been put in surplus countries which, on this line of reasoning alone, are unlikely to acquiesce in preventable inflation.

A third difficulty with the relative cost criterion is that compensation cannot, in practice, be paid directly. If, for example, it is judged that surplus countries should inflate at a higher rate than they had previously been inflating in order to relieve the deficit countries of the problem of additional unemployment, could the surplus countries justify to their own people the act of altruism that additional inflation would imply? The implicit *quid pro quo* may be, of course, that, when the situation reverses itself, the country previously in deficit would return the favor by inflating. But could Europe have been confident, if governments there had inflated more rapidly between 1959-1964, that the United States would in turn inflate if its deficit turned into a substantial surplus? It is doubtful that the U. S. Government could ever convince the American public of the need to inflate just to solve European balance of payments difficulties. A European government may well feel that a commitment to inflate in order to solve U.S. problems is like accepting a check that will ultimately bounce.

III. *Exchange Rate Adjustment*

The failure of the internal stability criterion in the case where it may well be most relevant, and the practical impossibility of applying a relative cost criterion, naturally suggest a consideration of alternative adjustment measures. When deficit countries are depressed and surplus countries are inflating, why not alter the exchange rate?

Disregarding the relevant fact that exchange rate adjustments have been deemphasized in recent years, and that the adjustable peg mechanism introduced at Bretton Woods has been all but abandoned, a little reflection shows that the possibility of exchange rate adjustment does not avoid the problem of determining the distribution of the adjustment burden.

One reason is that an exchange rate adjustment will not ordinarily suffice to bring about, simultaneously, balance of payments equilibrium along with internal balance in each country (one instrument ordinarily cannot suffice for multiple objectives); and this means that residual financial adjustments will be required in any case, the burden of which must be decided in some fashion. But, more important, both from a theoretical and a practical standpoint, is the fact that an exchange rate adjustment must itself be

"distributed" between deficit and surplus countries.

Should the deficit countries devalue, the surplus countries appreciate, or does it make any difference?

The simplest way to test whether it makes any difference is to consider what happens when both countries devalue (or appreciate) in the same proportion. If an equal devaluation has no effect on real or money values, it cannot matter whether the deficit country devalues or the surplus country appreciates.

When the problem is posed in this way, it is immediately clear that the key issue is the meaning to be attached to devaluation. There is, first of all, a trivial sense in which appreciation of both currencies has no effect on equilibrium. If Germany appreciates the mark with respect to the dollar by 10 percent of the initial mark-dollar exchange rate, and then appreciates the dollar relative to the mark to the same extent, the exchange rate is back where it was before and no economic variables can have been affected (provided the exchange markets are closed in the interim!). But this is completely trivial, for it amounts to changing something and then putting things back to where they were at the beginning.

In a nontautological sense we might consider a world of only two currencies, the franc and the mark, and suppose that France appreciates the franc against the mark by 10 percent of the initial rate of F5.0 = DM4.0 (so that the Banque de France stands willing to buy and sell marks freely at the rate of F5.0 = DM4.4); and that Germany simultaneously appreciates the mark against the franc by 10 percent of the initial rate (so that the Bundesbank stands willing to buy and sell francs freely for marks at the rate of F5.0 = DM3.6). Can this leave economic variables unchanged?

Obviously not! The Banque de France cannot long offer to buy and sell marks for francs at one rate and the Bundesbank at another. The rates are incompatible, and arbitrageurs worth their salt would buy marks at the Banque de France (where they are cheap) in exchange for francs, and buy francs at the Bundesbank (where they are cheap) in exchange for marks. Both banks would be flooded with their own currency and would quickly exhaust all their foreign exchange reserves, resulting in strong automatic deflationary effects. In this sense of exchange rate changes, simultaneous appreciation in the two countries cannot be said to have no effect on economic variables.

There is a third sense in which exchange rate adjustment can be conceived. Suppose that both countries appreciate their currencies against a unit of account such as gold. To take another hypothetical example, suppose that Britain defines the pound as being worth 2/25 ounces of gold, while the U.S. defines the dollar as being worth 1/35 ounces of gold, so that the dollar-pound exchange rate is £1 = $2.80. Then suppose that Britain and the U.S. simultaneously appreciate their currencies in terms of gold by, say, halving its price. Then the pound becomes worth 4/25 of an ounce of gold and the dollar 2/35 of an ounce of gold. The exchange rate between the pound and the dollar is unchanged, at £1 = $2.80. Are there any economic effects of this change?

The answer is that it depends on whether gold is a ficticious unit of account or whether it is a tangible commodity that is bought and sold and held, either privately or as a reserve by the central banks. If it is an abstract unit it has only a definitional purpose and the change referred to above would have no consequence.

In the real world gold has a tangible function so that, in this meaning of exchange rate adjustment, simultaneous appreciation must directly affect economic equilibrium. And, if this is the relevant sense of exchange rate adjustment, it means that appreciation in surplus countries is not the same as depreciation in

deficit countries, and that therefore the same problem of determining the distribution of the burden of international adjustment presents itself under a system of variable exchange rates as under a system of fixed exchange rates.

Par values are today defined in terms of the gold content of the U.S. dollar of 1944 so that, in effect, gold is the unit of account even though countries peg directly, or indirectly through the pound sterling, to the current U.S. dollar. To illustrate the effects of devaluation in one country as compared to appreciation in another country, consider again the U.K.-U.S. example. Suppose that the U.K. has a deficit and the U.S. a surplus. What then would be the difference between a depreciation of the pound of, say, 10 percent, and an appreciation of the dollar of 10 percent?

In the case of a devaluation of the pound, the pound price of gold rises from £12.5 per ounce to £13.75, and the dollar-pound exchange rate moves to £1 = $2.52. The pound value of both the U.S.' and Britain's gold reserves increases by 10 percent, while the dollar value of reserves in both countries remains unchanged. In other words, the purchasing power of the U.S. and U.K. gold stocks, in terms of British goods, rises, while (initially at least) remaining unchanged in terms of American goods. World liquidity has *increased*.

Now consider appreciation by 10 percent in the U.S. The dollar price of gold goes down to $31.50, creating again an exchange rate of £1 = $2.52. But this time the dollar value of Britain's and the U.S.' gold stock goes down by 10 percent while the pound values of gold stocks are unchanged. World liquidity has *decreased*.

It follows, then, that devaluation in one country cannot be considered the equivalent of appreciation in another country, and that the question of the distribution of the burden of exchange rate adjustment reasserts itself. In what proportion should deficit countries devalue compared to the extent surplus countries should revalue?

IV. *The Size Criterion*

I have now argued that the internal stability criterion for determining how adjustment should be distributed between deficit and surplus countries fails in the important case where surplus countries are inflating and deficit countries are depressed; that the relative cost criterion is of little practical use; that the possibility of exploiting exchange rate variation does not eliminate the problem because there always remain required residual price or income adjustments; and finally, that the distribution of exchange rate variations between appreciating and depreciating countries itself requires a theory. There is, in other words, a gap in the literature on the theory of the adjustment process: There is no criterion establishing how adjustment between deficit and surplus countries should be distributed—whether the adjustment is to be effected by price or by exchange rate changes—although both the internal stability criterion and the relative cost criterion retain considerable importance in certain cases.

I shall now show, however, that *size* is a factor which must be taken directly into account. Specifically, I shall demonstrate that, in theory, adjustment should be divided *in inverse proportion to the sizes of the countries*. To develop this proposition, I shall first show that adjustment under automatic mechanisms will normally be inversely proportionate to size, on the basis of elementary classical or Keynesian assumptions. I shall then argue that in the important sense of maintaining world price stability this division is optimal.

First, consider a crude classical model of two countries—in which the Quantity Theory of Money applies—operating on the Gold Standard. Suppose that one country has a deficit and loses gold, and that the other has a surplus and gains gold. How will size affect the extent to

which the price level goes up in the surplus country and down in the deficit country?

Apart from complications arising from different banking systems and differential fractional reserve ratios, the price level in each country will change in proportion to the increase or decrease in the stock of money which, under a gold specie standard, would be equal to the gold flow. However, the percentage change in the price level in either of the two countries will be equal to the *percentage* change in the money stock, and this percentage change is equal to the gold flow divided by the initial stocks of gold. Then, since the absolute amount of gold gained by the surplus country is equal to the absolute amount of gold lost by the deficit country, it follows that the ratio of the price changes will be inversely proportionate to the size of the country, to the extent that the stocks of money in the two countries reflect the sizes of the countries.

Consider, for example, a world of two countries disparate in size—the United States and Andorra—and suppose that an initial equilibrium is disturbed by a capital movement from the U.S. to Andorra, one that is not immediately transferred in real terms. Then Andorra will have a balance of payments surplus and the U.S. an equal payments deficit; but the domestic monetary effects of the external disequilibrium in Andorra will be huge in relation to the domestic monetary effects of the external disequilibrium in the United States. Andorran prices and costs will go up substantially while U.S. prices will hardly be affected at all. The small country in surplus bears the brunt of the adjustment burden.

The opposite situation applies, of course, when there is a capital movement from Andorra to the United States. This time Andorra will have a payments deficit and the U.S. an equal surplus, but the resulting monetary contraction in Andorra will be a large proportion of the money supply in that little country, inducing a prompt and considerable decline in prices, whereas the monetary effects in the United States will be felt only in small measure. The small country in deficit bears once more the brunt of the adjustment burden.

Small countries have to adjust absolute price levels to big countries and, if a change in relative price levels is required, the adjustment will be effected by a movement of the absolute price level in the small country with hardly any change in the price level in the big country.

The validity of this proposition does not depend on the *simpliste* classical assumptions by means of which it was demonstrated; the conclusion holds in a world of two countries in which all adadjustments are effected—à la Keynes—through interest rate and income changes. If the surplus country is large compared to the deficit country, the gold flows will have little effect on interest rates, and therefore little effect on investment, in the surplus country; but the same gold flows will have a relatively substantial effect on interest rates and investment, and therefore on money income, in the smaller countries. Consequently, the percentage adjustment in money income will be very large in the small country compared to the percentage adjustment in the money income of the big country.

V. *Normative Aspects of the Relative Size Criterion*

I have now demonstrated that adjustment normally *will* occur in the small country, but not yet that it is in the interests of world stability if it occurs there. Yet it follows easily in both the classical and Keynesian examples. For, if a relative price adjustment between the export prices of deficit and surplus countries of, say, 10 percent is required to restore equilibrium, stability of a *world* price index will require that the bulk of the adjustment be borne by the small country;

as one country becomes infinitesimal in size, a world price index of production approaches the internal price index of the big country. A similar argument also holds in the unemployment case, because the correction of a given balance of payments gap by income changes in a small country rather than a large country minimizes the fluctuations of world output, since the marginal propensity to import in an economically small country is high relative to the marginal import propensity of the large country, "openness" itself being a function of size.

Further, it should be apparent that the relative size criterion also provides the information necessary to determine the optimal division of exchange rate adjustments when the currencies of both countries under consideration are pegged to a commodity like gold or a third currency. Assuming the world as a whole has a sufficient amount of liquidity (in the sense that an adjustment of relative price levels and a redistribution of reserves could be found which would establish general equilibrium), the normal and correct adjustment under fixed exchange rates would imply a reduction in reserves and the money supply and price level in the deficit country, and an increase in reserves and the money supply and price level in the surplus country. To render this adjustment process unnecessary, by exploiting the possibility of exchange rate changes, the changes in gold prices should be roughly in inverse proportion to the size of the two countries, provided domestic money supplies are linked to external reserves. A large increase in the gold price of the deficit country, if it were small, combined with a small decrease in the gold price in the surplus country, if it were large, would be required to preserve the average real value of external reserves in the world as a whole and at the same time effect the needed adjustment of relative prices. Thus, if an adjustment of 10 percent in relative price levels were required to restore equilibrium between, say, France (assumed to be in surplus) and the United States, and these were the only two countries in the world, an increase in the price of gold in the U.S. by 2 percent, combined with a decrease in the price of gold in France by 8 percent, would effect the required relative exchange rate adjustment without creating excess or deficient liquidity in the world as a whole, on the assumption that the U.S. is four times as large as France.

►HERBERT G. GRUBEL

The Gold and Dollar Crisis Five Years Later

In the Spring of 1960, a speculative attack on the United States dollar ushered in a new era in international monetary relations. For the first time since the end of the Second World War, confidence in the dollar was shaken and United States government obligations ceased to be considered a reserve asset "at least as good as gold." A few months earlier, Robert Triffin, in a prophetic book,[1] had analyzed the fallacies and dangers of a world payments system built on key currencies. The speculative episode and Professor Triffin's book stimulated world-wide discussions, and academic economists soon produced an outpouring of plans for monetary reform.[2] More recently, in July 1965 a committee charged with presenting an official American plan for reform was formed under the direction of Henry H. Fowler, Secretary of the Treasury.

In this paper, I shall briefly review the recent pronouncements of international institutions concerning the problem of world monetary organization. I will then

Herbert G. Grubel is an Assistant Professor of Economics at the University of Chicago. The author gratefully acknowledges the comments of Arthur I. Bloomfield and Robert Triffin on an earlier version of this paper. Needless to say, this current version is not to be interpreted as a reflection of their views.

[1] *Gold and the Dollar Crisis,* New Haven: Yale University Press, 1960.

[2] The most important of these proposals have been reprinted in H. G. Grubel, *World Monetary Reform: Plans and Issues,* Stanford: Stanford University Press, 1963; the proposals were summarized in F. Machlup, *Plans for Reform of the International Monetary System,* International Finance Section, Princeton, 1964, Special Papers in International Economics, No. 3.

present a set of statistics designed to put the data on liquidity published by these organizations into meaningful relationship with other economic magnitudes, and to throw more light on the developments of the past five years.

I. *The Fund and Group-of-Ten Studies*

The international institutions criticized in the world-wide discussions of the past five years, and the major industrial countries of the West dependent upon the functioning of these institutions, reacted very slowly to the challenges of the events in 1960 and the intellectual ferment that followed. Nearly four years elapsed before the International Monetary Fund, and the industrial countries organized as the Group of Ten, each commissioned a review of the international monetary system and the probable future needs for liquidity. The analytical approaches to the problem, and the positive recommendations produced by these reviews[3] were not startling. This outcome could have been anticipated, for example, from the instructions given by the Ministers of the Group of Ten to their Ministerial Deputies explicitly ruling out any examination of alternatives to the system of fixed exchange rates and the established price of gold.

The Group-of-Ten study presented statistics on reserve assets, but in no way related the volume of these assets to any measure that could conceivably serve as an index of the demand for reserves. In the theoretical discussion of such a measure, the report concluded that it knew of "no satisfactory quantitative formula for the measurement of liquidity need."[4] Yet, at another point in their report, the experts inexplicably came to the conclusion that "the over-all liquidity of the system seemed fully adequate in present circumstances."[5] If they had criteria upon which to base this judgment, these were not presented. The Group-of-Ten study conceded that "the need may in time be felt for some additional kind of reserve asset,"[6] and therefore recommended a study of the long-run need for international liquidity. However, it concluded that "in view of the adequacy of the supply of gold and reserve currencies in the present and in the near future, there is no immediate need to reach a decision as to the introduction of a new type of reserve asset. The studies can therefore be pursued without undue haste."[7] Aside from their recommendation for a new study of liquidity needs, the review gave "expression of support" to a general increase in the Fund's quotas.

The study by the International Monetary Fund also contained a discussion of the determinants of the demand for reserves. The widely known objections to the value of imports as a measure of demand were analyzed, but no substitute was proposed; in the end, imports were used.

Although the Fund study considered the current monetary system to be adequate and praised its flexibility and adaptability, the tone of its conclusions and recommendations conveyed a greater sense of urgency than did the Group-of-Ten study. It suggested that the Fund "enter upon a broad exploration of the possible ways to meet any inadequacies in the supply of international liquidity."[8] But in the next paragraph, the broadness of the proposed exploration was limited by the insistence that "It will be wise . . . to supplement and improve the system

[3] The IMF study appeared as Part II of the 1964 *Annual Report of the International Monetary Fund*. The Group-of-Ten study was first released on August 10, 1964 and is most easily accessible in the *Federal Reserve Bulletin*, August 1964, pp. 975-999.

[4] *Op. cit.*, p. 983.

[5] *Ibid.*

[6] *Op. cit.*, p. 984.

[7] *Op. cit.*, p. 988.

[8] *1964 Annual Report*, p. 32.

Figure 1

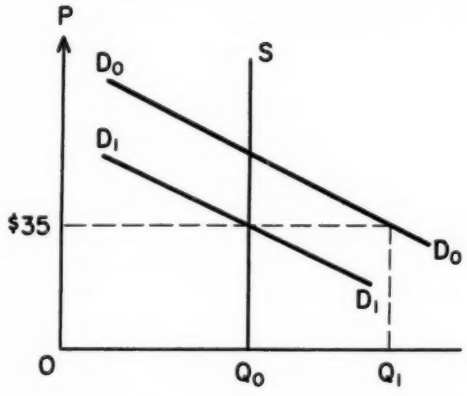
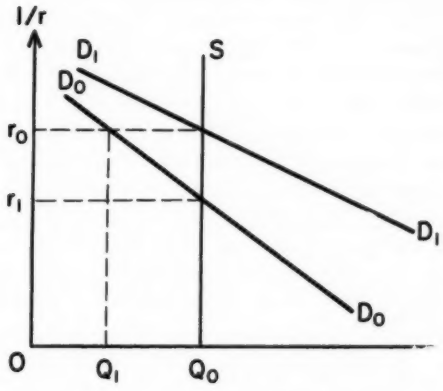


Figure 2



where changes are indicated, rather than to look for a replacement of the system by a totally different one."[9]

Both studies emphasized the flexibility and adaptability of the current system to meet the problems of international monetary stability and growth, and concluded that the current system can be changed sufficiently—without altering its basic character—to meet future world demands.

II. *Appraisal of the Present International Monetary System*

Let us examine the extent to which the present international monetary system has adapted to the challenges revealed by the events of 1960. The two basic problems of the time can most easily be shown in two simple diagrams which, while unrealistic in some respects, nevertheless allow certain interesting insights. Figure 1 assumes that at any moment in time the world demand and supply of gold is a function of its price, given such other factors as the level of international trade, the quality of key currencies available, their interest yield, and the strength of the general belief that their value in terms of gold will be maintained. Figure 2 shows the demand and supply schedules for key currencies under the assumption that the demand is an increasing function of the interest yield.

The problems of 1960 can be interpreted as having been an excess demand for gold, and an excess supply of key currencies at the existing price of gold and interest rates, conditions which could have been remedied by upward valuation of gold and a rise in interest rates. However, gold revaluation was ruled out for political and practical reasons, and interest rates in the United States were kept low to encourage full employment and economic growth. Instead, a series of institutional changes was introduced which, in essence, amounted to a once-and-for-all shift in the demand curve for key currencies, in turn causing a shift in the demand curve for gold.

The institutional changes were designed to increase confidence in the value of the key currencies. The Basle arrangements for the support of sterling in 1961 and 1963, the swap arrangements by the United States in 1962-63, the gold-pooling arrangements of 1961, and the General Arrangements to Borrow[10] enabled the

[9] *Ibid.*

[10] For an analysis of some of these arrangements, see R. Aliber, *The Management of the Dollar in International Finance,* International

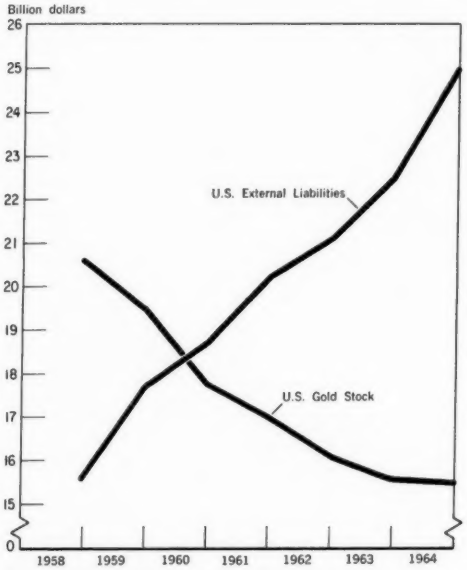
key currency countries to meet sudden demands for conversion of their outstanding obligations into gold or other acceptable currencies. As is true of deposit insurance and the willingness and ability of the Federal Reserve System to provide individual banks with liquidity when needed, knowledge of the security of deposits alone was sufficient to reduce substantially the need to draw on these resources. Thus, the dangers of short-run crises in confidence were effectively reduced, and the willingness of major countries to help each other in case of short-run speculative attacks served to alleviate the fundamental difficulties that prevailed in 1960. The demand curve for key currencies shifted upwards from D_o D_o to D_1 D_1, thus eliminating the excess supply situation. At the same time, the increased willingness to hold key currencies reduced the demand for gold, shifting downward the demand curve to D_1 D_1 and eliminating the excess demand.

In this manner, the world monetary system proved its adaptability. The Bretton Woods machinery as it existed in 1960 was inadequately equipped for dealing with the problem of confidence. Partly through the leadership of the International Monetary Fund, this situation was remedied. But it should be noted that the changes were of such a nature that they cannot be repeated; it will be very difficult to find additional institutional arrangements to deal with crises of confidence in key currencies.

The present system has not, however, been able to deal with what many economists consider to be the basic problem and ultimate cause of the disequilibria that existed in 1960. The basic problem is that the increase in the supply of gold, i.e. the rightward shift of the S curve in Figure 1, has in recent years occurred at so slow a rate that the relatively rapid upward shift in the demand for gold caused by the higher levels of international trade created excess demand at the existing price of gold. During the past five years, the increased supply of key currencies, coupled with the institutional changes mentioned above, has slowed down the outward shift of the demand curve for gold. But, as both the report of the Group of Ten and IMF study acknowledge, there will most likely occur a slowdown in the growth of key currency obligations in the future, simply for the reason that the process of increasing United States obligations and decreasing the United States stock cannot go on forever. Chart 1 shows the development of these two magnitudes between 1958 and 1964, and the reader is left to form his own impression as to how long this accumulation of United States short-term obligations is likely to continue into the future. Note should be taken of the significant crossing of the two lines in 1960, the year of the first dollar crisis. Thus, if the price of gold is to be kept down, a

Chart 1

United States Gold Reserves and Official and Banks' Short-term Liabilities to Foreign Countries



Source: **International Financial Statistics,** various issues.

Finance Section, Princeton University, 1964, Princeton Studies in International Finance, No. 13.

substitute for key currencies has to be found. This fact is acknowledged in the reports, as well as in the suggestion that further studies of the long-range liquidity problem be undertaken.

III. *Growth of International Reserves, 1960–1964*

We turn now to an examination of the growth in international reserves between 1960 and 1964, in order to explore the extent to which the system has adapted to changes in the demand for reserves, and to determine whether judgments can be made about future needs. The statistics on reserve holdings supplied by the two reports are not very useful for this purpose. Although there are adequate data on the stock of reserves and their growth and distribution among countries, there are no comparable statistics on the demand for reserves. Yet, it is well known that scarcity or abundance are meaningful concepts only in the relationship of supply *and* demand.

The lack of statistics on demand stems from the fact that no conceptually unambiguous measures have been developed. Although the elements of demand may be readily enumerated, their measurement is much more difficult. The transactions demand for reserve assets may grow proportionally to trade, by the square root, or by some other factor. The need for funds to meet temporary requirements depends on a country's willingness to alter the pegged rate (at the extreme of complete flexibility of exchange rates, the need for official reserves is zero), the flexibility of domestic wages and prices, and the readiness to sacrifice real output and growth to restore external balance.[11] Further, the requirements of any one country depend on the preferences and behavior of other countries. Most difficult to account for is the fact that balance of payments decisions are rarely made solely on the basis of clear-cut economic criteria. Interest rates, budget deficits, and international trade restrictions are determined by a political process of bargaining among many vested interests in the economy, all of which are affected in some way by the levels at which these policy factors are maintained. Unless we are willing to engage in what many economists consider to be distasteful interpersonal comparisons of welfare, this fact practically rules out the possibility of devising maximization criteria from which optimum reserve holdings may be determined.[12]

Despite these difficulties of conceptualization and measurement, there does exist a demand for international reserves. An excess of demand over supply may lead to a world-wide "liquidity crisis," as some observers fear, or it may lead more subtly to seemingly independent national restrictions on trade, "temporary" reductions in tourist allowances, "voluntary" curbs on private capital flows, and the like.

In view of the lack of a theoretically valid demand function for reserves and the clear-cut need to find some sort of measure for demand, I have used the quantity of imports as a proxy which, inadequate as it may appear to many, is superior to the alternative of disregarding demand altogether. The accompanying tables show the year-by-year growth of total reserves, as well as the component parts—gold, foreign exchange, and Fund reserve positions—and the annual changes in imports to which the various classes of reserves were related as percentages. The most important percentage figures are plotted graphically in Charts 2 and 3.

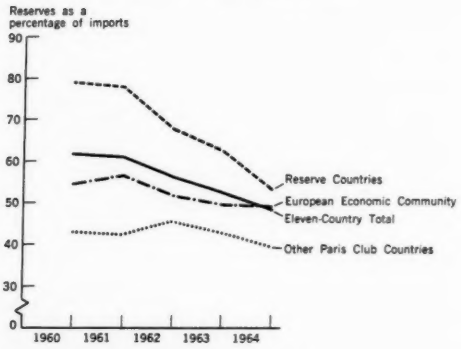
Chart 2 sheds doubt on the validity of the proposition that the present system has been successfully adapted to the pro-

[11] See H. G. Grubel, "The Benefits and Cost of Being the World Banker," *The National Banking Review*, 2, December 1964.

[12] For an interesting discussion of some of these issues, see F. Machlup, *International Payments, Debts, and Gold*, New York: Scribner's Sons, 1964, Chapters XII-XIII.

Chart 2

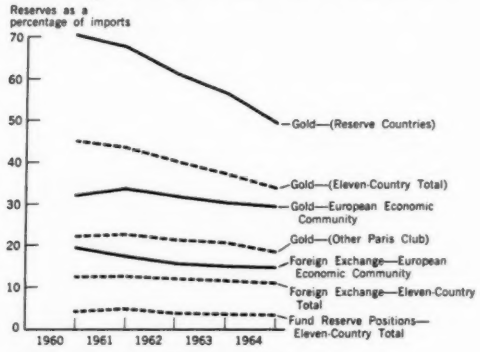
Ratios of Total Reserves to Imports



Source: **International Financial Statistics,** various issues.

Chart 3

Ratios of Gold, Currency and Fund Positions to Imports



Source: **International Financial Statistics,** various issues.

vision of liquidity. The ratio of reserves to imports has fallen for all 11 countries covered, as well as for the subgroups of countries. Very few observers would be willing to assert that the ratio in 1960 was excessively high. Whatever inflationary pressures prevailed at that time existed in countries with deficient rather than excessive levels of international reserves. The substantial decline in the ratio over the period, therefore, strongly suggests that reserves in 1964 were scarcer than they were in 1960.

The dramatic decline in the ratio for all 11 countries could be considered irrelevant if it had been accompanied by a redistribution of reserves away from countries with excessive stocks to countries with shortages. However, this line of argument does not seem very convincing, since all of the relevant subgroups of countries actually experienced declines in their ratios. On the individual-country level, only the reserve ratios of Sweden, France, and Canada increased during the period. Of these countries, Sweden started the period with the excessively low level of 18, and Canada was on flexible exchange rates at the outset but had returned to the reserve-demanding regime of pegged rates by the end of the period.

On the basis of this evidence, one is tempted to raise the question of how low the ratio of reserves to imports can be allowed to fall before it is considered inadequate. The trends over the past five years, since the first dollar crisis of the postwar era, do not give much support to the view that "the studies can be pursued without undue haste."

The breakdown of reserves shown in Chart 3 reveals some significant facts about the changes of the past five years. The impressive decline in the ratio of gold to imports of the reserve currency countries was in large part due to the gold withdrawals of some surplus countries. But it is interesting to note that the gains by the European Economic Community countries were insufficient to maintain the ratio of gold to imports they had achieved in 1960.

A second important fact is that the large increases in dollar holdings brought about by the United States deficits succeeded only in keeping the ratio of foreign exchange to imports constant for the 11 countries, and lowered it slightly for the European Economic Community. As noted before, this ratio can be expected to fall as soon as the United States brings her payments into balance.

Another remarkable feature brought out by the chart is the size of the Fund reserve positions of the 11 countries. The precise definition of this asset category is fairly involved (see the *International Financial Statistics,* Notes to tables), but

basically it is that sum of resources that countries may draw upon without negotiation or conditions. In a sense, this asset is a perfect substitute for gold and foreign exchange. However, the Fund reserve position is a misleading indicator of the Fund's role in the supply of reserves, since it does not reflect the authority's actual credit extensions nor its changed willingness to make these credits available. Such conditional resources can, up to a point, serve as a substitute for freely available assets, and their use has increased in recent years. On the other hand, the relatively small size of this form of asset indicates that the Fund has not been able to adapt its institutional setup so that it could play anything more than a minor role in the provision of owned reserves. Given the imperfect substitutability between conditional credit and unconditionally owned assets, the reform of the international monetary system must have the adequate creation of the latter as its main goal.

IV. *Conclusions*

We conclude that the official response to the weaknesses of the present world monetary system, first exposed by the events of 1960 and Professor Triffin's analysis, has been successful in dealing with crises of confidence, but it has been unable to prevent a significant decline in the ratio of international reserves to imports. Moreover, it appears that the reserves in the form of positions with the Fund are such a small proportion of total reserves that increases of many times that base would be required to bring about a significant improvement in the world's over-all reserve position. Increases of such a magnitude may well require a fundamental reform of the present system.

Appendix

Table 1

1964 Reserves, Imports, and the Ratio of Reserves to Imports, as a Percentage of 1960 Figures

	Reserves*	Imports	Reserves as a Percentage of Imports
I. **Reserve Countries**	82.2	122.2	67.3
United States	86.1	122.6	70.2
United Kingdom	62.2	121.8	51.1
II. **European Economic Community**	138.0	152.9	90.3
France	251.9	160.3	157.1
Germany	112.1	144.6	77.5
Italy	117.6	153.1	76.8
Netherlands	126.1	155.7	81.0
Belgium	145.5	158.9	91.6
III. **Other Paris Club**	132.4	145.5	91.0
Canada	130.9	122.9	106.5
Japan	103.6	177.0	58.5
Switzerland	134.4	169.9	83.5
Sweden	182.6	132.9	137.4
IV. **Eleven-Country Total**	109.1	139.2	78.4

Source: **International Financial Statistics**, various issues.
* Reserves are year-end totals for gold and foreign exchange holdings plus Fund reserve positions.

Table 2

International Reserves, Imports, and Ratios of International Reserves to Imports, 1960–64
(Millions of dollars)

Countries	1960			1961		
	Reserves*	Imports	Reserves as a Percentage of Imports	Reserves*	Imports	Reserves as a Percentage of Imports
I. **Reserve Countries**	$23,078	$29,222	*79.0*	$22,071	$28,377	*77.8*
United States	19,359	16,508	*117.3*	18,753	16,069	*116.7*
United Kingdom	3,719	12,714	*29.3*	3,318	12,308	*27.0*
II. **European Economic Community**	15,924	29,340	*54.3*	18,089	32,162	*56.2*
France	2,272	6,281	*36.2*	3,365	6,679	*50.4*
Germany	7,032	10,107	*69.6*	7,163	10,948	*65.4*
Italy	3,251	4,725	*68.8*	3,799	5,223	*72.7*
Netherlands	1,863	4,531	*41.1*	1,958	5,089	*38.5*
Belgium	1,506	3,696	*40.7*	1,813	4,223	*42.9*
III. **Other Paris Club**	6,790	15,785	*43.0*	7,437	17,640	*42.2*
Canada	1,989	6,150	*32.3*	2,276	6,193	*36.8*
Japan	1,949	4,491	*43.4*	1,666	5,811	*38.7*
Switzerland	2,324	2,243	*103.6*	2,759	2,707	*101.9*
Sweden	528	2,901	*18.2*	736	2,929	*25.1*
IV. **Eleven-Country Total**	45,792	74,347	*61.6*	47,606	78,179	*60.9*

Source: **International Financial Statistics,** various issues.
* Reserves are year-end totals for gold and foreign exchange holdings plus Fund reserve positions.

Table 2—Continued

Countries	1962			1963			1964		
	Reserves*	Imports	Reserves as a Percentage of Imports	Reserves*	Imports	Reserves as a Percentage of Imports	Reserves*	Imports	Reserves as a Percentage of Imports
I. **Reserve Countries**	$20,528	$30,372	*67.6*	$19,990	$32,066	*62.3*	$18,988	$35,736	*53.1*
United States	17,220	17,764	*96.9*	16,843	18,590	*90.6*	16,672	20,251	*82.3*
United Kingdom	3,308	12,563	*26.3*	3,147	13,476	*23.4*	2,316	15,485	*15.0*
II. **European Economic Community**	18,522	35,797	*51.7*	20,006	40,417	*49.5*	21,970	44,847	*49.0*
France	4,049	7,517	*53.9*	4,908	8,727	*56.2*	5,724	10,070	*56.8*
Germany	6,956	12,289	*56.6*	7,650	13,022	*58.7*	7,882	14,618	*53.9*
Italy	3,818	6,075	*62.8*	3,406	7,590	*44.9*	3,823	7,232	*52.9*
Netherlands	1,946	5,347	*36.4*	2,102	5,966	*35.2*	2,349	7,055	*33.3*
Belgium	1,753	4,569	*38.4*	1,940	5,112	*37.9*	2,192	5,872	*37.3*
III. **Other Paris Club**	8,242	18,147	*45.4*	8,497	19,901	*42.7*	8,987	22,972	*39.1*
Canada	2,547	6,367	*40.0*	2,603	6,618	*39.3*	2,881	7,560	*38.1*
Japan	2,022	5,637	*35.9*	2,058	6,637	*31.0*	2,019	7,947	*25.4*
Switzerland	2,872	3,020	*95.1*	3,078	3,253	*94.6*	3,123	3,610	*86.5*
Sweden	801	3,123	*25.6*	758	3,393	*22.3*	984	3,855	*25.5*
IV. **Eleven-Country Total**	47,292	84,271	*56.1*	48,493	92,384	*52.5*	49,945	103,555	*48.2*

Source: **International Financial Statistics,** various issues.
* Reserves are year-end totals for gold and foreign exchange holdings plus Fund reserve positions.

Table 3

Reserve Categories and Ratios of Reserves to Imports
(Millions of dollars)

A. Gold

Countries	1960	1961	1962	1963	1964
I. **Reserve Countries**	$20,605	$19,214	$18,638	$18,080	$17,607
	70.5	**67.7**	**61.5**	**56.4**	**49.3**
United States	17,804	16,947	16,057	15,596	15,471
	107.8	**105.4**	**90.4**	**83.9**	**76.4**
United Kingdom	2,801	2,267	2,581	2,484	2,136
	22.0	**18.4**	**20.5**	**18.4**	**13.8**
II. **European Economic Community**	9,436	10,839	11,455	12,281	13,223
	32.2	**33.7**	**32.0**	**30.4**	**29.5**
France	1,641	2,121	2,587	3,175	3,729
	26.1	**31.8**	**34.4**	**36.4**	**37.0**
Germany	2,971	3,664	3,679	3,843	4,248
	29.4	**33.5**	**29.9**	**29.5**	**29.1**
Italy	2,203	2,225	2,243	2,291	2,107
	46.6	**42.6**	**36.9**	**30.2**	**29.1**
Netherlands	1,451	1,581	1,581	1,601	1,688
	32.0	**31.1**	**29.6**	**26.8**	**23.9**
Belgium	1,170	1,248	1,365	1,371	1,451
	31.7	**29.6**	**29.9**	**26.8**	**24.7**
III. **Other Paris Club**	3,487	3,973	3,845	4,108	4,230
	22.1	**22.5**	**21.2**	**20.6**	**18.4**
Canada	885	946	708	817	1,026
	14.4	**15.3**	**11.1**	**12.3**	**13.6**
Japan	247	287	289	289	290
	5.5	**4.9**	**5.1**	**4.4**	**4.0**
Switzerland	2,185	2,560	2,667	2,820	2,725
	97.4	**94.6**	**88.3**	**86.7**	**75.5**
Sweden	170	180	181	182	189
	5.9	**6.1**	**5.8**	**5.4**	**4.9**
IV. **Eleven-Country Total**	33,528	34,026	33,938	34,469	35,060
	45.1	**43.5**	**40.2**	**37.3**	**33.9**

Source: See Table 1.
Note: The figures in boldface represent gold as a percentage of imports.

Table 3—Continued

B. Foreign Exchange

Countries	1960	1961	1962	1963	1964
I. **Reserve Countries**	$ 430	$1,167	$ 324	$ 385	$ 611
	1.5	**4.1**	**1.1**	**1.2**	**1.7**
United States	—	116	99	212	432
	—	**.7**	**.6**	**1.1**	**2.1**
United Kingdom	430	1,051	225	173	179
	3.4	**8.5**	**1.8**	**1.3**	**1.2**
II. **European Economic Community**	5,705	5,555	5,574	6,103	6,604
	19.4	**17.3**	**15.6**	**15.1**	**14.7**
France	429	818	1,023	1,282	1,376
	6.8	**12.2**	**13.6**	**14.7**	**13.7**
Germany	3,753	2,862	2,760	3,255	2,721
	37.1	**26.1**	**22.5**	**25.0**	**18.6**
Italy	980	1,332	1,372	837	1,571
	20.7	**25.5**	**22.6**	**11.0**	**21.7**
Netherlands	291	134	162	298	396
	6.4	**2.6**	**3.0**	**5.0**	**5.6**
Belgium	252	409	257	431	540
	6.8	**9.7**	**5.6**	**8.4**	**9.2**
III. **Other Paris Club**	2,987	3,008	4,168	4,157	4,213
	18.9	**17.1**	**23.0**	**20.9**	**18.3**
Canada	951	1,118	1,838	1,786	1,658
	15.5	**18.1**	**28.9**	**27.0**	**21.9**
Japan	1,577	1,199	1,553	1,589	1,469
	35.1	**20.6**	**27.6**	**23.9**	**18.5**
Switzerland	139	199	204	258	398
	6.2	**7.4**	**6.8**	**7.9**	**11.0**
Sweden	320	492	573	524	688
	11.0	**16.8**	**18.3**	**15.4**	**17.8**
IV. **Eleven-Country Total**	9,122	9,730	10,066	10,645	11,428
	12.3	**12.4**	**11.9**	**11.5**	**11.0**

Source: See Table 1.
Note: The figures in boldface represent foreign exchange as a percentage of imports.

Table 3—Continued

C. Fund Reserve Position

Countries	1960	1961	1962	1963	1964
I. **Reserve Countries**	$2,043	$1,690	$1,566	$1,524	$ 769
	7.0	**6.0**	**5.2**	**4.8**	**2.2**
United States	1,555	1,690	1,064	1,035	769
	9.4	**10.5**	**6.0**	**5.6**	**3.8**
United Kingdom	488	—	502	489	
	3.8	—	**4.0**	**3.6**	
II. **European Economic Community**	784	1,705	1,492	1,570	2,144
	2.7	**5.3**	**4.2**	**3.9**	**4.8**
France	202	426	438	451	619
	3.2	**6.4**	**5.8**	**5.2**	**6.1**
Germany	309	637	517	552	913
	3.1	**5.8**	**4.2**	**4.2**	**6.2**
Italy	68	243	203	226	146
	1.4	**4.7**	**3.3**	**3.0**	**2.0**
Netherlands	121	243	203	203	265
	2.7	**4.8**	**3.8**	**3.4**	**3.8**
Belgium	84	156	131	138	201
	2.3	**3.7**	**2.9**	**2.7**	**3.4**
III. **Other Paris Club**	316	455	228	233	506
	2.0	**2.6**	**1.3**	**1.2**	**2.2**
Canada	153	212	—	—	198
	2.5	**3.4**	—	—	**2.6**
Japan	125	180	180	180	220
	2.8	**3.1**	**3.2**	**2.7**	**2.8**
Switzerland	—	—	—	—	—
	—	—	—	—	—
Sweden	38	63	48	53	88
	1.3	**2.2**	**1.5**	**1.6**	**2.3**
IV **Eleven-Country Total**	3,143	3,850	3,286	3,327	3,419
	4.2	**4.9**	**3.9**	**3.6**	**3.3**

Source: See Table 1.
Note: The figures in boldface represent Fund reserve position as a percentage of imports.

Key Currency Burdens: The U.K. Case

►ALAN P. KIRMAN AND WILSON E. SCHMIDT

Professor Herbert Grubel's analysis[1] of the cost to the United States of serving as a key currency country provokes a question: How has the U. K. fared? If the U. K. bears a net burden, as Grubel suggested the U. S. does, the cost to the key currency countries of the gold exchange standard would seem to be established.

In the accompanying table we employ the format and procedures used by Grubel as summarized in his Table 4[2]. As with Grubel, all benefits and costs are calculated for a single year. Items (a) and (b) use his coefficients.[3] But item (c) employs data for returns on British foreign investments.[4] Item (d) uses a different interest rate on foreign balances.[5] Item (e) is estimated at zero because net sterling liabilities actually fell between 1951 and 1963.[6]

Item (f) differs from Grubel's because, even apart from its key currency function, the U. K. probably has too few reserves.[7] The ratio of her reserves to total imports is less than that of the industrial countries as a group (excluding the U. K.), and is even less than that of the underdeveloped countries together.[8] The key currency

Alan P. Kirman holds a Bologna Center Fellowship at The Johns Hopkins University Bologna Center where Wilson E. Schmidt is Visiting Professor of Economics on leave from The George Washington University.

[1] *The National Banking Review*, 2, December, 1964.

[2] *Ibid.*, p. 205.

[3] An alternative figure of £125 million, which covers effects under both (a) and (b), is given in *Committee on the Working of the Monetary System, Minutes of Evidence*, Question 2528.

[4] In "Does Foreign Investment Pay? *Moorgate and Wall Street*, Autumn, 1964, Table IV, J. H. Dunning sets the premium on foreign investment at .2 percent over the period 1960-62. The British foreign investor is notably less successful than the American foreign investor. This is sometimes attributed to the concentration of U. K. investment in the sterling area, which underscores the costs of serving as a key currency to a smaller area than the world as a whole.

[5] An interest rate of 4½ percent is derived from *The Economist* (London), January 16, 1965. This is subtracted from the 10 percent figure employed by Grubel. It might be argued that 10 percent, if correct for the U. S., is too low for the U. K. because of the greater risks attending any loan to the latter as a result of its more severe balance of payments difficulties. However, the U. K. external borrowings to replace foreign balances would be smaller than those of the U. S., which works in the opposite direction.

[6] *International Financial Statistics, Supplement to 1964-65 Issues*, p. 247.

[7] According to Grubel, in the case of a key currency country, additional reserves are needed as security against deposit withdrawals. Because these additional reserves tie up real resources, key currency countries cannot benefit in this respect. They may of course gain from the larger volume of deposits; these gains are counted under (d) and (e). In the case of the U. K., the problem has not been one of having to tie up resources, but rather one of being forced, by the inadequacy of reserves, to maintain confidence by policy measures, the cost of which comes under item (g).

[8] *Ibid.*, pp. iv, xv. Note the low position of the U. K. in the tables of H. R. Heller, "A New

Table

Key Currency Benefits and Costs: The U. K. Case
(millions of pounds sterling)

Analytical Class	Published Data Class and Value		Estimated Percentage of Gross Figure	Net Loss or Gain
Benefits				
(a) Sale of Banking Services	1% of Foreign Short-Term Liabilities (1962)	£52	5	£2.6
(b) External Effects on Trade	Merchandise Exports (1964)	4,254	1	42.5
(c) Return on Long-Term Capital	Long-Term Foreign Assets (1962)	9,715	.2	19.4
(d) Use of Foreign Deposits	Gross Short-Term Liabilities (1962)	5,200	5.5	286.0
(e) Flexibility	Increase in Net Sterling Liabilities, 1951–63	0	100	0
Costs				
(f) Inadequate Reserves			?	?
(g) Output Gap	GNP (1964)	28,370	4.5	1,277.0

function has no doubt imposed costs upon the U. K. in the form of interest and other charges on short-term loans from lenders of last resort such as the International Monetary Fund and the Basle group. As data on the charges of the latter are lacking, no estimate of the costs is given.

Item (g) is also different from Grubel's; whereas the United States suffered unemployment, the U. K. has enjoyed almost continuous full employment. Nonetheless, it is a widely held view that the rate of growth has been slowed by the stop-and-go policies of the governments.[9] If we assume that the U. K. could have grown at an annual rate of 3 percent (and not the often discussed 4 percent target) over the 12-year period since the start of stop-and-go in 1952, instead of the 2.6 percent rate which has prevailed since 1950, the GNP of the U. K. would have been 4½ percent higher in 1964 alone.[10]

We do not add the column of net losses and gains because this would imply more precision than the estimates warrant. But it is reasonably clear that the U. K. also has suffered from its key currency status.[11]

Measure of International Liquidity," *The National Banking Review*, 2, December, 1964.

[9] S. J. Wells, *British Export Performance*, Cambridge: University Press, 1964, pp. xxii, 67 f.; Paul Einzig, *Monetary Policy: Ends and Means*, London: Penguin, 1964, p. 192; "Background to the Banking Scene," *Westminster Bank Review*, February, 1965, p. 25; "Current Notes," *Westminster Bank Review, op.cit.*, p. 49; Christopher McMahon, *Sterling in the Sixties*, London: Oxford University Press, 1964, p. 9; J. C. R. Dow, *The Management of the British Economy*, 1945-60, Cambridge: University Press, 1964, p. 400. For an alternative view see John Knapp and Kenneth Lomax, "Britain's Growth Performance: The Enigma of the 1950's," *Lloyds Bank Review*, October, 1964.

[10] A series which grows at 2.6 percent per annum will equal 136.47 percent of its starting level in 12 years, whereas a series which grows at 3 percent per annum will equal 142.57 percent of its initial level over the same period. The difference between the two at the end of 12 years, over 136.5 percent, gives 4.5 percent.

[11] In the foregoing calculations, we have made no allowance for the alleged benefits to the U. K. from having the leading commodity markets of the world within its borders. We have excluded them on the ground that their existence is independent of the role of the pound as a key currency. In the article "U. K. Commodity Markets," *Bank of England Quarterly Bulletin*, September, 1964, pp. 194 f., these markets are attributed to the history of British exploration, investment overseas, and industrialization, and the consequent growth in trading links.

How Much Has Being World Banker Cost?

►JOHN H. KAREKEN

In the December 1964 issue of this *Review*, there appears an ingenious attempt, authored by Professor Grubel, to calculate what being world banker has cost the United States.[1] Among the several costs he has found is some unspecified portion of the output gap, Council style, under which our economy has of late been laboring. But why some unspecified portion? Possibly because, as I shall suggest in this note, there are some macro-economic models, characterized paradoxically enough by an excessive freedom for policy-makers, within which allocation of the total cost imposed by constraints on the instrument or policy variables is theoretically impossible. And it could be that underlying Professor Grubel's calculations is one such model.

I.

To begin with, I shall assume that there are just two countries, the United States (US) and the Rest of the World (ROW). I shall also assume that the government of ROW reacts to changes in US economic policy in a particular and perhaps peculiar way, by passively accepting any proposed change in the exchange rate peg and, in the face of a change in US domestic economic policy, by holding its income and interest rate to prior levels.[2] And I shall assume, finally, that:

(1) $Y = Y(r, s, e)$

(2) $B = B(r, s, e)$.

The first of these two equations gives market-clearing US money income as a function of the three US instrument variables: its interest rate (r), full-employment budget surplus (s), and exchange rate (e). The second equation gives the US (market-clearing) balance of payments surplus as a function of these same three instrument variables.[3]

Not that it matters greatly, but equations (1) and (2) comprise what strikes me as a rather common or popular macro-economic model. Nor, more importantly, does my model seem wildly inconsistent with the one Professor Grubel appears to have employed. In any event, here its distinguishing characteristic is that there

John H. Kareken is a Professor of Economics at the University of Minnesota.

[1] Herbert G. Grubel, "The Benefits and Costs of Being the World Banker," *The National Banking Review*, 2, December 1964, pp. 189-212.

[2] Alternatively, I believe I could have assumed that feedback effects, being relatively small, can for all intents and purposes be ignored.

[3] For every level of US money income there is, by assumption, one and only one price level-unemployment rate "couple." And so, although the balance of payments surplus is typically taken as dependent upon relative prices, I can write:

$B = B'(r, Y, e)$.

But since I shall here be interested only in those balance of payments surpluses corresponding to market-clearing levels of income, I write:

$B = B'[r, Y(r, s, e), e] = B(r, s, e)$.

are more instrument than target or goal variables.[4] In general, it should therefore be possible, within the confines of this model, to reach any desired economic goal—defined by specific values of the two target variables, income and the balance of payments surplus—even if one of the three instrument variables is constrained to some given value.

Since it suits my purpose, I shall assume, though for the moment without bothering to explain why, that there is a "no devaluation" constraint; I shall assume, in other words, that the exchange rate is given ($e = e_0$) and cannot be changed. Still, there are by assumption various US domestic economic policies—combinations of the remaining two instrument variables, interest rate and full-employment budget surplus—that will yield any preassigned level of US income (Y_1). These policies or combinations (r, s) are determined by the iso-income line Y_1:

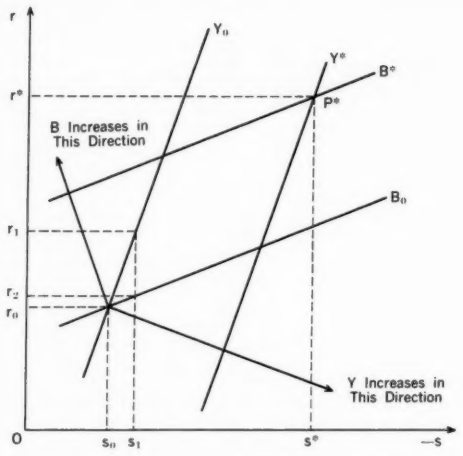
(3) $Y_1 = Y(r, s, e_0)$.

And there are by assumption various domestic economic policies that will yield any preassigned balance of payments surplus (B_1). These policies (r, s) are determined by the iso-surplus line B_1:

(4) $B_1 = B(r, s, e_0)$.

Now, under what I, at least, regard as the traditional assumptions (including linearity), the iso-income and iso-surplus lines are as depicted in Diagram I.[5] More particularly, the iso-income lines are of steeper slope than the iso-surplus lines. This is easily demonstrated. A decrease in the full-employment surplus from s_0 to s_1 (Diagram I.), if combined with an increase in the interest rate from r_0 to r_1, leaves income unchanged at Y_0. Such a change in domestic economic policy must, however, increase the payments surplus from its original level B_0. Income remains unchanged, but of itself the increase in the interest rate induces a capital inflow and thereby a larger payments surplus. Accordingly, the change in the interest rate associated with the assumed change in the full-employment surplus ($s_1 - s_0$), *but along the iso-surplus line B_0*, has to be less than ($r_1 - r_0$). In Diagram I., it is represented as being ($r_2 - r_0$).

Diagram I



Let me now assume that the ultimate economic objective of the US is the point P* in Diagram I., which, if defined in terms of target variables, has the coordinates (Y^*, B^*) and, if in terms of instrument variables, the coordinates (r^*, s^*). Evidently then, since nothing has been said about constraints on the interest rate or the full-employment budget surplus, achieving "bliss" is entirely possible.[6] In

[4] I would conjecture that what I have to say below holds for any model having this characteristic. Thus, the introduction of a third target variable, possibly the rate of economic growth, should not matter if, at the same time, a fourth instrument variable were added. A likely candidate, at least under certain assumptions, is another interest rate. Then there would be two, a long-term rate and a short-term rate.

[5] Note that the x-axis has been inverted in Diagram I. A movement to the right along this axis is in the direction of a smaller full-employment budget surplus or, what is the same thing, a larger full-employment deficit.

[6] Throughout, I ignore the possibility of the point P* being located in other than the first quadrant.

the situation defined by equations (1) and (2), the constraint $e = e_0$, which rules out devaluation, is costless.

Not that the "no devaluation" constraint need be costless. To anticipate a bit, it would not be if US policy-makers were hampered by still other operative constraints. However, if this were so, how would one apportion the cost of being constrained among the several restrictions on the freedom of the policy-makers?

II.

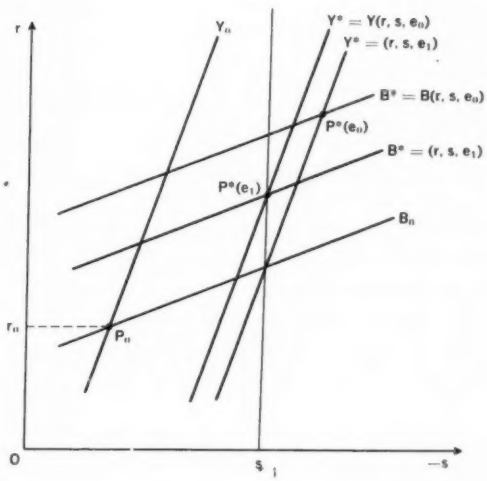
It seems reasonable to locate the United States economy of (hopefully) the past several years at point P_0 in Diagram II. At this point unemployment is by definition excessive, and the balance of payments surplus is too small. What has got to be determined, then, is why the US did not proceed *directly* to its optimum point P^*—either to $P^*(e_0)$ or to $P^*(e_1)$. (By assumption, $e_1 > e_0$.) A possible answer, suggested by Professor Grubel,[7] is that the US, in its role as world banker, did not feel itself able to devalue the dollar. Undoubtedly this is true, but yet, given the model employed here, this is not to say that playing world banker has been costly for the US. As has already been shown, with equations (1) and (2), the constraint $e = e_0$ is costless.

A second possible answer mentioned by Professor Grubel[8] is that the US, again in its role as world banker and therefore as keeper of large foreign-owned liquid balances, was unable to indulge freely in an expansionist monetary policy, or in what is here taken to be equivalent, lower interest rates. Again, this is probably correct. It cannot, however, explain a failure to move from point P_0 to point P^*. Indeed, I have already acknowledged this constraint. That a move to lower interest rates results in some deterioration in the balance of payments position is assumed in my model and reflected in Diagrams I. and II. It is precisely this that compels a country located at a point such as P_0 to move "northeastward," not "southward."

Plainly, for a country bent on traveling "northeastward," it is the upper rather than the lower bound on the interest rate that is inconveniencing. And possibly US policy-makers operated during the early 1960's under a self-imposed constraint to hold interest rates down out of concern for economic growth. It is more likely, it seems to me, that they were faced with a politically inspired lower limit on the full-employment budget surplus.[9]

I shall therefore assume a new constraint, $s \geqq s_c$, into existence. In Diagram II., the set of feasible domestic economic

Diagram II



[7] *The National Banking Review, op. cit.*, p. 204.

[8] *Ibid.*

[9] Professor Grubel has observed that the 1964 tax cut was several years in the making. And because he thinks of the US as having been precluded by its role as world banker from lowering interest rates, that is, as having been forced to rely on fiscal policy, he interprets this evident fact as showing that our world responsibilities have indeed been costly. An expansionist fiscal policy takes longer to effect, he says, than an expansionist monetary policy. Perhaps. But I should be inclined to interpret the time it took

policies or combinations (r, s) is limited accordingly. But, now, with the two constraints:

$$e = e_0$$

$$s \geqq s_c,$$

the (optimum) point $P^\bullet(e_0)$ is impossible of achievement. If the second of these constraints limiting the full-employment surplus is honored, it is possible to reach an optimum point $P^\bullet$ only by devaluing. An increase in the dollar price of ROW's currency shifts the original iso-income line $Y^\bullet$ leftward and the original iso-surplus line $B^\bullet$ rightward and so shifts the original optimum point $P^\bullet$ "southwestward." Moreover, a sufficiently large increase in the exchange rate will make the point $P^\bullet$ feasible again—in terms, that is, of the combinations (r, s). With $e = e_1$, the optimum point is $P^\bullet(e_1)$, which is feasible.

III.

To sum up, in the choice situation defined by:

(1) $Y = Y(r, s, e)$

(2) $B = B(r, s, e)$

(5) $e = e_0$

(6) $s \geqq s_c$

(where the functions Y and B are as depicted in the diagrams), it is impossible to reach the optimum point. One cannot conclude from this, however, that there is a determinable cost associated with being world banker and consequently being unable to devalue (or lower interest rates). There is a cost, but only because there are two operative constraints. In other words, there is a joint cost—which, not so incidentally, disappears entirely when either constraint is withdrawn. This, then, is why I doubt that it can be apportioned in anything but an arbitrary way.

In fairness, though, I should repeat what I said at the outset of this note. Professor Grubel does not apportion what he takes to be the total welfare loss for 1962 (?)—some $40 billion of lost output—over whatever constraints he feels were operative, including the inability to devalue. Perhaps, therefore, he is entirely aware of the point made here; namely, that in a certain kind of model, apportioning the cost of constraints is not possible.

to get a tax cut as proof that the US was operating under a constraint on the full-employment deficit it could incur.

Current Legal and Regulatory Developments

I. *Lending Limits*

It has recently been held by the Comptroller that installment notes executed by students in payment for business-college tuition, and discounted with full recourse by the college with a national bank, would qualify as installment consumer paper with respect to which exception 13 to the bank's 10 percent lending limit would be applicable.[1] It was stated that any installment notes executed for college fees and tuition which are discounted by the college with full recourse constitute installment consumer paper, within the meaning and subject to the limitations of exception 13.[2]

II. *Loans Secured by Capital Debentures*

It has been held by the Comptroller that in the issuance of capital notes by a national bank, the bank may make loans or discounts in the ordinary course of its banking business, secured by a pledge of its own capital notes, and that such a transaction would not violate the limitations contained in 12 U.S.C. 83, which permit the lending national bank's own stock to be pledged as security for a loan made by it only when such security is necessary to prevent loss to the bank for a debt previously contracted.[3] The Comptroller has also held that a national bank may make loans in connection with a distribution of its capital notes, the proceeds of which would be used by borrowers to purchase the bank's capital notes.

III. *Loan Participation*

The Comptroller has given his approval to the plan of a national bank to sell

---

[1] Under exception 13 of 12 U.S.C. 84, obligations as endorser or guarantor of negotiable or nonnegotiable installment consumer paper—which carries a full recourse endorsement or unconditional guarantee by the party transferring the same—are subject to a lending limit of 25 percentum of the bank's capital and surplus.

[2] Where, as in the foregoing fact situation, the bank relies primarily upon the credit of the college for repayment, the lending limit applicable to the college with respect to such obligations is 25 percentum of the bank's capital and surplus. However, if the bank places primary reliance upon the student for payment of the installment note given in payment for tuition and fees, and if the bank makes the appropriate certification with respect to such primary reliance as required by exception 13, the obligation of the student is the only obligation which must be considered in applying the lending limits of 12 U.S.C. 84. In this connection, see *The National Banking Review*, 2, June 1965, pp. 574-575.

[3] This ruling reflects a modification in policy from that contained in a ruling published in *The National Banking Review*, 1, June 1964, pp. 600-601.

participations in earmarked loans in a pool to its correspondent banks. Under this plan, each participant would purchase a fixed fractional interest in each loan and acquire a fixed property right in each loan, rather than an equity interest in a loan portfolio, and each participant would be entitled to a fractional share of any collection made on a particular loan in which the participant had an interest. At least annually, the bank would furnish to each participant credit information concerning each of its borrowers in whose loans the participant had an interest. The bank would also furnish a monthly report to each participant showing the notes collected and the new notes placed in the pool. When a note has been collected, each participant would have the option to acquire a fractional interest in a replacement note or to receive a proportionate share of the proceeds of the collected note. There would be an automatic acquisition of interest in a replacement note if the participant did not notify the bank, within five days of receipt of a monthly report, that it elected to receive proportionate shares of the proceeds of a collected note. The bank would agree to repurchase from the participants and, after written demand, the participants would agree to sell to the bank certificates evidencing a fractional interest in any one or more of the notes. The Comptroller held that such a purchase and sale of participations in particular loans by a national bank does not conflict with any statute, regulation, or policy applicable to national banks, and that the sale and purchase of fixed fractional interests in a particular loan in the manner outlined are within the powers of a national bank.

IV. *Borrowing Limitations*

The statutory borrowing limitation applicable to national banks[4] was the subject of a ruling by the Comptroller in a case where a mortgage executed by a national bank on a bank building was secured by the building without any additional liability being imposed on the bank. Included in the mortgage agreement was a provision conferring upon the lender, another national bank, the right to have an assignment of the leases executed by tenants who would occupy the building. It was held that, although the bank would assume no general liability under the mortgage agreement, the mortgage obligation would be considered as indebtedness within the meaning and subject to the limitations of 12 U.S.C. 82. However, in view of the economic, financial, and other relevant factors surrounding this particular transaction, the Comptroller gave his approval to the mortgage loan made by the lending national bank to the borrowing national bank, and excepted all obligations and liabilities arising out of the mortgage loan agreement from the borrowing and lending limitations of 12 U.S.C. 82 and 12 U.S.C. 84, respectively.[5]

V. *Lease Financing*

The Comptroller has ruled that, as a lawful exercise of its powers, a national bank could, together with other commercial banks as owner-participants and with a group of insurance companies and others as loan-participants, provide funds

[4] Under 12 U.S.C. 82, a national bank may not at any time be indebted, or in any way liable, for an amount exceeding the amount of its capital stock plus 50 percent of the amount of its unimpaired surplus fund.

[5] Under exception 9 of 12 U.S.C. 82, the borrowing limitation of section 82 is not applicable to liabilities incurred by a national bank on account of loans made with the express approval of the Comptroller of the Currency under exception 9 of 12 U.S.C. 84 (which provides that the 10 percent lending limit based on capital and surplus of a national bank is not applicable to obligations representing loans to any national bank when such loans are approved by the Comptroller of the Currency).

under a participation agreement for the purchase of jet aircraft. In this transaction, under a trust agreement entered into between the owner-participants, trustees for the participants, and a national bank as fiscal agent for the trustees, the airline assigned to the trustees all of the rights, but none of the obligations, it held under a purchase agreement. Upon completion of each aircraft, title thereto was to be transferred from the manufacturer to the trustees and, on the same day, the trustees would lease such aircraft to the airline for a term of 13 years under a lease agreement to be entered into between the trustees and the airline.

The lease agreement provides for equal quarterly rental installments payable in advance by the lessee airline to the fiscal agent throughout the 13-year lease term for each aircraft. Each quarterly rental payment is to be made in amounts equal to a certain specified percentage of the lessor's cost for the respective aircraft. The lease agreement contains no provisions for renewal of any purchase option whereby the airline may acquire title to the aircraft. It provides that if an aircraft becomes obsolete or surplus to the lessee's requirements, the lessee may cause the trustees to sell the aircraft to any one other than the lessee or an affiliate. In the event of such sale, the airline must pay the trustees any deficiency between the net sales price and the termination value for the aircraft, as set forth in a schedule annexed to the lease agreement. Any profits on the sale of an aircraft are to be retained by the trustees and distributed to the owner-participants after payment in full of loan certificates issued in connection with the aircraft. These loan certificates, to be issued to the loan-participants, will be payable in 51 quarterly level payments of principal and interest commencing at the beginning of the 13-year lease term and continuing throughout the lease term. It is estimated that the bank participants will recover their original investments plus a fair return without taking in account the residual value of the aircraft at the end of the 13-year lease term.

In a second ruling, the Comptroller held that a national bank may lawfully engage in the lease financing of diesel locomotives under a plan whereby the manufacturer would conditionally sell locomotives to a trustee, who in turn would hold title for the bank as the beneficial owner under conditional sales contracts for which the bank would not be individually obligated. Payments under these contracts would be made only out of the trust assets, i.e., the rentals from the lease.

In a third ruling, the Comptroller has approved the participation by a national bank in certain leasing arrangements whereby the lessor would enter into transactions involving the leasing of equipment to lessees who are customers of the bank, and with the bank purchasing a participating interest. The lessor would own all the equipment to be leased and, upon execution of the lease, would handle all transactions relating to the lease and the equipment. The bank and the lessor would agree that the bank would be entitled to receive its pro-rata share (i.e., its participating percentage) of the net rental payments collected by the lessor and of the net proceeds of any sale of the equipment by the lessor. The bank would have no obligation with respect to the leased equipment, nor would it have title to, or any interest in, the leased equipment except its rights to receive its pro-rata share in the rent and/or sale proceeds. Under the terms of the equipment lease, the lessee would agree with the bank, as the purchaser of a participating interest in the lease transaction, to be unconditionally and absolutely obligated to pay to the lessor all amounts owed under the lease by the lessee (including amounts payable by the lessor to the bank, in the latter's participating capacity), irrespective of the cancellation or termination of the lease. The lessee would

further agree not to assert against either the lessor or the bank, as participant, any right to abatement, deduction, or setoff. As in the two preceding lease transactions, the Comptroller concluded that this particular lease transaction was within the powers of a national bank pursuant to paragraph Seventh of 12 U.S.C. 24.

VI. *Financing of Real Estate*

The Comptroller has given approval to two national banks to finance, through a participation agreement, the acquisition of two school buildings by a nonprofit school corporation. A planning corporation was to construct the school buildings to be leased to a school corporation, and upon completion of construction the banks were to purchase these buildings subject to net noncancellable leases which were to be assigned to the banks and which were to provide that the lessee school corporation would be the absolute owner of the leased property upon the termination of the leases. The banks would rely on the obligation of the school corporation to levy a tax sufficient to produce annually the necessary funds to pay the lease rental. The Comptroller concluded that a national bank may, pursuant to paragraph Seventh of 12 U.S.C. 24, finance the acquisition of school buildings in reliance on the taxing power and obligation of the school corporation and, as a part of such financing, acquire the legal title to real estate subject to the lease of such buildings to the lessee school corporation.

In another ruling, the Comptroller gave his approval to a financing of municipal facilities by a national bank. The national bank agreed to construct a building on a tract of land owned by the city, title to the building remaining in the bank until payment in full was made, and rental payments for the building constituting a general obligation of the city. The Comptroller held that a national bank may lawfully finance the construction and acquisition of a building in accordance with such a contractual arrangement with a municipality which would make rental payments therefor and, at the expiration of the lease, become the owner of the building.

The Comptroller's approval has also been granted to a national bank to finance the acquisition of an incinerator facility by a municipal government. Under the plan submitted to the Comptroller, the builder of the incinerator facility would lease it to the city, and the national bank would purchase from the builder the right to receive rental payments under the lease. The bank would rely on the power and obligation of the city to levy a tax which would be sufficient to produce annually the necessary funds to pay the lease rental. The lease agreement would provide that the lessee city would be the absolute owner of the leased property upon termination of the lease. It was held by the Comptroller that a national bank may, pursuant to paragraph Seventh of 12 U.S.C. 24, purchase the right to receive rental payments in a transaction such as this one.

VII. *Investment Securities*

The Comptroller has issued a second ruling concerning the eligibility of certificates issued by the Federal National Mortgage Association for dealing in, underwriting, and unlimited holding by national banks under paragraph Seventh of 12 U.S.C. 24.[6] In this ruling the Comptroller held that all certificates of participation issued by the Federal Mortgage Association in a fiduciary capacity in accord with a related trust indenture are "public securities," as defined in the Investment Securities Regulation (12 CFR

[6] The first ruling was discussed in *The National Banking Review*, 2, March 1965, pp. 427-428, and was published at 12 CFR 1.155. It related to the eligibility for national bank underwriting of only a specific issue of certificates of the Association.

1.3(c)), and are therefore eligible for dealing in, underwriting, and unlimited holding by national banks under paragraph Seventh of 12 U.S.C. 24.[7]

The Comptroller has concluded that certain bonds issued by the Illinois Building Authority are "public securities" as defined in Section 1.3(c) of the Investment Securities Regulation (12 CFR 1.3(c)) issued pursuant to paragraph Seventh of 12 U.S.C. 24, and are therefore eligible for dealing in, underwriting, and unlimited holding by national banks.[8] The Comptroller found that the Illinois Building Authority is a body corporate and politic, whose principal purpose is to build and otherwise provide hospital, housing, penitentiary, administrative, classroom, library, recreational, laboratory, office, and other such facilities for use by the State of Illinois. He further found that the Authority may borrow money, and issue and sell bonds payable from revenues derived from leases of these facilities to state agencies and others, and that the Authority is required to establish charges, fees, and rentals sufficient to pay maintenance and operation, unless the lease otherwise provides, and all principal and interest on the bonds.

Finally, the Comptroller found that the proceeds from the sale of the foregoing bonds along with certain other funds will pay for the cost of facilities built and otherwise provided by the Authority; that the payment of principal and interest on these bonds are and will be secured by Authority revenues derived from the leasing of its facilities to the various agencies of the State of Illinois and, if necessary, to other tenants; and, that although payment of rent by a state agency to the Authority will be from appropriations by the General Assembly of the State of Illinois, revenues from a particular facility of the Authority which are not required to service bonds issued for the facility will be placed annually into a reserve account and, to the extent necessary, used for the purpose of meeting debt service requirements of all bonds of the Authority. He therefore concluded that these particular bonds were eligible for underwriting by national banks.

[7] Published at 12 CFR 1.164.

[8] This ruling, published at 12 CFR 1.165, related specifically to the $25,000,000 Illinois Building Authority Revenue Bonds, series of April 1964, and the $34,730,000 Illinois Building Authority Revenue Bonds, series of June 1965.

VIII. *Nomination of Bank Directors*

The Comptroller has issued a regulation[9] relating to the requirement that advance notice be given of the nomination of a national bank director.[10] The regulation, which became effective on June 1, 1965, states that any national bank may provide in its articles of association or bylaws, or both, for a requirement that any shareholder who intends to nominate, or to cause to have nominated, any candidate for election to the board of directors (other than any candidate proposed by the bank's present management) must notify the bank and the Comptroller of the Currency. The regulation further states that such bylaw or amendment may provide that the notification must be made in writing and delivered or mailed to the president of the bank and to the Comptroller of the Currency not less than 14 days nor more than 50 days prior to any meeting of stockholders called for the election of directors, provided however, that if less than 21 days' notice of the meeting is given to shareholders, such nomination must be delivered or mailed to the president of the bank and to the Comptroller not later than the close of the seventh day following the day on which the notice of meeting was mailed. Such notification must contain, to the extent

[9] *Federal Register*, June 2, 1965.

[10] This regulation, 12 CFR 17, is to a large extent identical to a proposed regulation discussed in *The National Banking Review*, 2, June 1965, p. 584.

known to the notifying shareholders, the names and addresses of the proposed nominee; the principal occupation of each proposed nominee; the total number of shares that to the knowledge of the notifying shareholders will be voted for each of the proposed nominees; the name and resident address of the notifying shareholders; and the number of shares owned by the notifying shareholders.

It is provided in the regulation that if a national bank duly adopts these notice requirements, any nomination for director not made in accordance therewith may be disregarded by the chairman of the meeting, and votes cast for each such nominee may be disregarded by the vote tellers. However, the regulation also provides that in the event the same person is nominated by more than one shareholder, the nomination shall be honored, and all shares shall be counted if at least one nomination for that person complies with the regulation.

IX. *Management Qualifications*

The Comptroller has issued a ruling on the question of age limitations for officers, employees, and directors of national banks. The fixing of qualifications for officers and employees, including age qualifications, is usually considered within the exclusive province of the bank's board of directors, and the question whether a bank's shareholders, by resolution, can enforce an age limit policy for directors is one of general corporate law upon which the Comptroller has not published a formal opinion. The fixing of age limits for directors of national banks is further complicated by the provision of Federal law[11] which confers the right of mandatory cumulative voting upon shareholders of national banks. However, the Comptroller stated that he would not object to any national bank's instituting a policy of mandatory retirement at a reasonable age for officers and directors, whether that policy was provided by resolution of the bank's board of directors or by the bank's shareholders.

In another ruling, the Comptroller held that, although the right of national bank shareholders to elect a bank's directors[12] may not be unreasonably qualified or conditioned in the bank's bylaws, a national bank may, by an amendment to its articles of association, require that its directors shall not be officers or directors of another bank in a contiguous county or within the subject bank's trade area.[13]

X. *Articles of Association and Bylaws*

The Comptroller has published revised model forms for articles of association and bylaws for national banks. Under these model forms—whose use is not mandatory—the number of the bank's directors may be fixed within minimum and maximum limits to be set out in the articles by resolution of the shareholders, or by the board of directors acting by majority vote of the full board. For banks with boards numbering 15 or less, the directors would be permitted by vote of the majority of the full board to increase the board by not more than two of the number last elected by shareholders. For banks with boards of 16 or more members, the board of directors, by vote of a majority of the full board, could increase the board by not more than four members. These provisions reflect a recent ruling by the Comptroller which modified an earlier ruling permitting board increases between shareholders' meetings to not more than two directors, regardless of the size of the board.[14]

---

[11] Title 12 U.S.C. 61.

[12] As governed by 12 U.S.C. 61, 71 and related statutes.

[13] It was noted that such a requirement may be imposed irrespective of whether the provisions of 15 U.S.C. 19, which relate to interlocking directorates in certain circumstances, are applicable.

[14] 12 CFR 7.5.

Another model article implements the statute enacted by Congress last year that permits the date of the annual meeting of shareholders to be set in the bylaws rather than in the articles.[15] This same article contains provisions relating to advance notice of nonmanagement nominations for directors as permitted in the Comptroller's recently published ruling discussed elsewhere in this issue of the *Review*,[16] and includes the items of information required to be contained in the notice of nonmanagement nominations.

A provision in another model article would authorize the bank to issue debt obligations, including capital notes, without the specific approval of shareholders.[17] This provision reflects a recent ruling[18] by the Comptroller which modified an earlier ruling that a national bank may, with the approval of stockholders owning two-thirds of the stock of the bank who are entitled to vote, issue convertible or nonconvertible capital debentures in such amounts and under such terms and conditions as shall be approved by the Comptroller. Some of the other provisions in the model articles would permit the reservation of authorized but unissued shares, provide for the elimination of pre-emptive rights, increase the number of shareholders necessary to call a special meeting without the approval of the bank's board of directors from 10 percent to 25 percent of the ownership of the bank's outstanding stock, and authorize the indemnification of directors and officers against legal expenses and other expenses incurred in defending suits brought against them by reason of their connection with the bank.[19]

Under the model bylaws, duties previously ascribed by the bylaws to a cashier have been assigned to the secretary, cashier, or any other designated officer whom the board of directors wishes to have carry out the functions usually performed by a corporate secretary. All references to the cashier relating to stock certificates, corporate seal, and the execution of instruments have been amplified to permit his functions to be carried out by a secretary, assistant secretary or any other officer.

XI. *Branch Banking*

The Comptroller has issued a ruling regarding the installation in shopping centers and other such locations of a machine which receives checks, currency and coins, and issues slips which provide evidence of the transaction and state that the transaction will become a deposit upon verification and crediting at the bank premises. It was ruled that placement by a national bank of such a machine off the bank's premises does not violate, or come within the scope of, applicable branch banking laws[20] inasmuch as the bank would not accept funds for deposit until they reached the banking premises. The ruling noted that the plan contemplated that a bank which installs such a machine would assume responsibility for providing adequate insurance protection under its own insurance bonding program.

XII. *Automatic Payment Plan Account*

The Comptroller has held that a national bank may, as a lawful exercise of

---

[15] This statute (Pub. L. 88-232, which amended 12 U.S.C. 71 and 75) also abolished the requirement that the annual meeting be held in the month of January. See *The National Banking Review*, 1, March 1964, p. 428.

[16] See pp. 111-112.

[17] The adoption of this and other new articles of association requires the approving vote of the holders of a majority of the voting shares of the stock of the bank obtained at a meeting of the stockholders called and held pursuant to notice as set forth in detail in 12 U.S.C. 21a.

[18] 12 CFR 14.5.

[19] In this connection, see this issue of the *Review*, p. 116.

[20] Title 12 U.S.C. 36(c), and to the extent that applicable state branch law is incorporated therein.

its powers, adopt an automatic payment plan account for the benefit and convenience of its savings depositors. Under this plan, a savings account would earn dividends at the current rate paid by the bank on regular savings accounts, and the depositor, upon reaching an age previously designated, would receive his accumulated savings and interest earned thereon in installments of equal amounts over a specific period of time. The plan, which could be terminated at any time by the depositor, would provide for a complete return to the depositor of savings and interest on deposit.

XIII. *Trusts of Self-Employed Individuals Tax Retirement Act*

The Comptroller has recently ruled that in the case of a collective investment fund for trusts qualifying under the Self-Employed Individuals Tax Retirement Act of 1962, of which a national bank is trustee but which is established by another party for participation limited to a particular class of self-employed persons, the requirement found in Section 9.18(b) of the Comptroller's Trust Regulation (12CFR9.18(b))—that the trustee bank have the exclusive management of the fund—is not contravened by a provision in the governing instrument prescribing that the outside party which established the plan, or a committee designated by that party, shall have the authority to direct the investments of the assets of the fund. However, this determination is applicable only to a collective investment fund established for retirement trusts of the self-employed. In addition, it was emphasized by the Comptroller that all other requirements of Section 9.18 of Regulation 9 are applicable for such collective investment funds.

XIV. *Voting of Bank Shares Held in Trust*

The Comptroller has issued an opinion on the question of whether, in the absence of prior approval of the donor or beneficiary of the trust, stock held by a national bank as sole trustee may be voted in connection with a merger involving the trustee bank.[21] It was held that shares of stock held by the national bank as sole trustee or sole executor may be voted by it for ratification of the merger agreement, and that the restrictions on voting of such stock by a national bank contained in 12 U.S.C. 61 are applicable only in connection with the election of directors of the bank. Further, it was held that where the merger agreement is considered also to include the election of directors, the national bank may vote the stock it holds as sole trustee in approving the merger, but should exclude these votes from consideration in determining the votes cast for the resulting bank's election of directors.

Another opinion has been recently issued with respect to voting by a national bank in its fiduciary capacity of the stock it holds as a sole trustee where permissible pursuant to the terms of the appropriate governing instrument in all matters except the election of directors. Noting that in the case of the election of directors, certain requirements are imposed by Federal banking law[22] pursuant to which a settlor of a trust may prescribe in the governing instrument that the shares of the bank may be voted in accordance with his directions or those of a named beneficiary, the Comptroller held that in executing that direction, the settlor or beneficiary may designate one or more persons, who may or may not be

---

[21] Under 12 U.S.C. 61, ". . . in the election of directors, shares of its own stock held by a national bank as sole trustee, whether registered in its own name as such trustee or in the name of its nominee, shall not be voted by the registered owner unless under the terms of the trust the manner in which such shares shall be voted may be determined by a donor or beneficiary of the trust and unless such donor or beneficiary actually directs how such shares shall be voted. . . ."

[22] Title 12 U.S.C. 61. See footnote 21.

officers of the bank, either by office or by name, to vote according to a generalized direction such as "in accordance with the views of management," or even according to the judgment of the party vested with such power. It was also held that such a direction need not be issued at the time of each election but rather, a single such direction may be made, which would have validity in all succeeding elections of directors until revoked. It was noted, however, that such a direction would be revoked should the settlor or beneficiary become incompetent.

XV. *Investment in Banking Premises*

The Comptroller has given his approval to a plan whereby a national bank would sell an undivided interest in real estate held as bank premises to a corporation, and would retain an undivided interest in such property in an amount not in excess of the amount of its capital stock. Under this plan, the bank would pay rent to the co-owner at a rate determined by an arm's length analysis of prevailing rentals, and would have an option to negotiate for a purchase of the undivided interest upon expiration of the lease. In approving this arrangement, the Comptroller held that such an investment in bank premises by a national bank would not be in excess of the limitation of 12 U.S.C. 371d;[23] that in applying the limitations of section 371d the indebtedness of the co-owner of the bank premises to whom the bank will pay rent need not be considered or included;[24] and, that the bank's cumulated rental payments over the term of the lease do not fall within the scope of the restrictions and should not be included in applying the limitations contained in either 12 U.S.C. 371d or 12 U.S.C. 82.[25] It was noted by the Comptroller that a national bank may acquire and directly hold real estate for premises by any reasonable and prudent means, such as ownership of an undivided interest, ownership in fee, a leasehold estate, or interest in a cooperative.

In another ruling, a national bank has received the Comptroller's approval of its plan for the procurement of a prime tenant for a major portion of the unrented office space in its banking building. The Comptroller noted that although Federal law[26] places certain limitations on the ownership of real estate by national banks, a national bank may lease or construct a building for banking purposes even though it intends to occupy only a part thereof, and it may rent a part of the building to others.[27] The Comptroller therefore held that if, as an incident to the procurement of a desirable tenant, a national bank must acquire real estate in which the tenant is already located, the bank may acquire the real estate so long as it disposes of it in accordance with the standards prescribed in applicable Federal law.[28] This real estate may be retained or transferred to a subsidiary or affiliate for use in the business of the bank, subsidiary or affiliate.

XVI. *Guaranty and Pledge of Assets*

A recent ruling related to the legality of a plan of a national bank to finance

[23] Title 12 U.S.C. 371d provides that in order for a national bank to invest in its bank premises an amount in excess of its capital stock, it must obtain the prior consent of the Comptroller of the Currency.

[24] See *The National Banking Review*, 1, September 1963, p. 136, in which it was stated that the Comptroller ruled that in applying the limitations of 12 U.S.C. 371d, investments made by an affiliated corporation holding the premises of the bank need not be included or considered, if the bank itself has made no investment in the affiliated corporation in any of the ways described in section 371d.

[25] A discussion of this question also appeared in *The National Banking Review*, 1, September 1963, pp. 145-146.

[26] Title 12 U.S.C. 29.

[27] *Perth Amboy National Bank* v. *Brodsky*, 207 F. Supp. 785 (S.D.N.D. 1962).

[28] Title 12 U.S.C. 29.

a new bank building, title to which would be in a wholly owned subsidiary of the bank, and which would be leased by the subsidiary to the bank under a net-lease arrangement. In order to finance the cost of the land and construction of the new building, the subsidiary corporation would issue construction notes, and upon completion of the new building the construction notes would be exchanged for secured notes. The Comptroller held that a national bank may guarantee payment of principal and interest due on a construction note issued by its bank premises subsidiary, and that secured notes issued by such subsidiary corporation may be secured by assets of the bank such as the bank's capital stock in the subsidiary corporation. It was noted by the Comptroller that under paragraph Seventh of 12 U.S.C. 24, a national bank has power to exercise through its board of directors or duly authorized officers or agents all such incidental powers as shall be necessary to carry on the business of banking. It was further noted that, as a general rule, a national bank may not lend its credit or become a guarantor on an obligation, or bind itself as surety to indemnify others in the event of loss, unless it has a substantial interest in the performance of the transaction involved. The Comptroller concluded, however, that a national bank has a substantial interest in the construction and financing of its new banking facilities, and therefore, that it would be lawful for a national bank to give a guaranty and pledge its assets in connection with notes issued by its wholly owned premises corporation for the construction and permanent financing of such facilities.[29]

XVII. *Directors' Liability*

The Comptroller recently held that under paragraph Fifth of 12 U.S.C. 24, the payment of premiums on insurance policies which would indemnify the bank's officers and directors against personal liabilities that might arise in the performance of their banking duties represents a permissible expense which may be incurred by the bank in order to secure and retain the services of competent personnel.

XVIII. *Directors' Responsibilities*

The Comptroller has noted that no formal regulation has been issued by him requiring directors of a national bank to perform examinations of the bank. However, he has stated that in view of the duties and liabilities imposed upon directors of national banks, it is considered a necessary and sound banking practice for a bank's directors to adopt an effective internal audit and control program, and periodically to review the bank's records to ascertain whether the policies set by the board of directors are being followed.

XIX. *Issuance of Commercial Paper*

The Comptroller recently ruled on the question of whether sections 298 and 299 of the Penal Code of the State of New York forbid the issuance of short-term notes by national banks located in New York State. The ruling held that national banks may issue short-term notes under the authority of the provisions contained in 12 U.S.C. 21 and 24, and that the only statutory provisions applicable to the issuance of such notes by national banks are contained in Federal law.[30] The Comptroller stated that section 298 of the New York State Penal Code, which specifically refers to any banking corporation or private banker authorized to carry on the business of banking under the laws of the State of New York, does not

[29] For a discussion of other rulings which relate to a national bank acting as a guarantor, see *The National Banking Review*, 2, September 1964, p. 98; and 2, June 1965, pp. 576-577.

[30] A discussion of the authority of national banks to issue short-term notes appeared in *The National Banking Review*, 2, September 1964, pp. 99-100.

purport to be applicable to notes issued by national banks. He further stated that section 299 of the New York State Penal Code relates to the maximum discount rate which may be paid for bills and notes issued by foreign corporations and individuals, and is therefore inapposite to the issuance of short-term notes by national banks. Accordingly, the Comptroller ruled that a national bank in the State of New York may issue short-term notes without regard to sections 298 and 299 of the New York State Penal Code.

The Comptroller has also recently issued an interpretation of 12 U.S.C. 82 which imposes limitations on total borrowings by national banks. The ruling relates to unsubordinated promissory notes of comparatively short term. Noting that such notes are issued in the ordinary course of banking business as a means of obtaining funds to be used in making loans and the performance of other banking functions, it was held that such negotiable or nonnegotiable promissory notes issued by national banks represent liabilities excepted from the limitations contained in 12 U.S.C. 82.

XX. *Pledge of Assets to Secure Deposits*

The Comptroller has expressed the view that the deposit of funds by a Federal Home Loan Bank in a national bank would be the deposit of "public money," for which the bank may pledge its assets.[31] The opinion stated that irrespective of the fact that stock held by the United States in the particular Federal Home Loan Bank may have been retired and its capital investment withdrawn, the four directors of each Federal Home Loan Bank chosen by the Federal Home Loan Bank Board constitute agents of the United States who exercise control over the bank's activities. Included within these activities is the deposit of the Federal Home Loan Bank's funds, which therefore constitutes "public money" within the meaning of the statute relating to securing funds of the United States.[32] It was concluded that, because the funds of Federal Land Banks consist, in part, of public money invested by the United States, and because control of the deposit of such bank's funds is exercised by an agent of the United States, deposits made by Federal Land Banks are deposits of "public money" for which national banks may pledge security.

In another ruling relating to the pledge of national bank assets to secure deposits, the Comptroller has held that a national bank in North Carolina is permitted to pledge Federal Government securities, at the request of a Housing Authority, to secure Housing Authority demand deposits. The ruling noted that the power of a national bank to pledge its assets as security for deposits is contingent upon the fulfillment of two conditions:[33] that state banks be authorized by the state to pledge their assets under the same circumstances, and that the deposits for which the national bank would pledge its

[31] Title 12 U.S.C. 265 provides, in pertinent part, that "All insured banks designated for that purpose by the Secretary of the Treasury shall be depositories of public money of the United States (including, without being limited to, revenues and funds of the United States, and any funds the deposit of which is subject to the control or regulation of the United States or any of its officers, agents, or employees, ...) The Secretary of the Treasury shall require of the insured banks thus designated satisfactory security by the deposit of the United States bonds or otherwise, for the safekeeping and prompt payment of public money deposited with them. . . . Provided, that no such security shall be required for the safekeeping and prompt payment of such parts of the deposits of the public money in such banks as are insured deposits. . . ."

[32] Title 12 U.S.C. 265.

[33] This authority, which is contained in 12 U.S.C. 90, relates to a pledge of assets to secure public funds other than those belonging to or under the control or regulation of the United States. A pledge of assets for such Federal funds is governed by 12 U.S.C. 265, as noted in footnote 31, above.

assets must be funds of a state or political subdivision, or of an agency or other governmental instrumentality of one or more states or their political subdivisions. The Comptroller concluded that, since North Carolina law authorizes North Carolina state banks to pledge their assets when the Housing Authority requires that its deposits be secured, a national bank in North Carolina may pledge its United States Government securities to secure the deposits of the Housing Authority to the extent that the Housing Authority requires that its deposits be secured.

XXI. *Loans Federally Guaranteed or Insured*

The Comptroller has issued a ruling relating to the manner in which national bank examiners will treat Federally guaranteed or insured portions of a bank's loan portfolio. In computing a bank's ratio of loans to deposits for the purpose of determining its liquidity, and in computing its ratio of loans to capital, surplus, and undivided profits, for the purpose of determining the adequacy of its capital structure, examiners will eliminate from the bank's loan portfolio its loans or portions of loans supported by the Federal Government or its agencies.

XXII. *Directors' Qualifying Shares*

The Comptroller has held that with his prior approval, a national bank may, by vote of its stockholders owning two-thirds of its stock, establish a separate class of common stock the issuance of which would be limited to directors of the bank and to the extent necessary to enable such directors to comply with the requirement (of 12 U.S.C. 72) that every national bank director must own, "in his own right," shares of the bank's capital and surplus aggregating not less than $1,000 par value (or $500 par value in the case of banks with capital of $25,000 or less). It was also held that the bank must, in accordance with 12 U.S.C. 21(a), make such amendments to its articles of association as may be necessary for this purpose. The shares comprising such separate classes of stock must have the same par value as that of the bank's common capital stock, and the total number of shares of such class may not exceed an amount necessary to satisfy directors' needs with respect to obtaining sufficient shares to qualify. It was also held that all shares of such separate class of common stock shall, at the time of issuance and at all times thereafter, be subject to a requirement that the bank redeem them at par value from the directors, with the Comptroller's approval, at the time he ceases to hold such office. All other privileges, rights, and obligations appurtenant to such separate class of stock, as are not inconsistent with law, may be fixed by the bank with the approval of its shareholders.

XXIII. *Litigation Involving Decisions of the Comptroller*

Five lawsuits have recently been instituted in which competitor banks contest the Comptroller's approval or possible approval of *branch applications* by national banks. In one case, the defendant national bank is located in a state where applicable branching law permits national banks to establish branches anywhere in the county in which the bank is located, subject to the Comptroller's approval. The principal issue in the case is whether the defendant bank, which is located at Fort Knox in Kentucky, is in a county and state for the proposes of applicable branching law. Fort Knox is a military reservation and Federal enclave ceded to the United States by the State of Kentucky. The national bank at Fort Knox formerly had no branches outside the military reservation. The Comptroller's approval of a branch of this national bank to be located in Hardin County, Kentucky, and outside Fort Knox, has been challenged by two banks,

whose principal contention is that, since the national bank at Fort Knox is not subject to the jurisdiction of the State of Kentucky, it is not legally within the State of Kentucky and therefore may not legally branch into the state. The Comptroller's position is that the main office of the national bank is geographically located at Fort Knox and within the boundary lines of Hardin County, Kentucky, and may, therefore, branch anywhere within Hardin County with the Comptroller's prior approval. The Comptroller has filed a motion to intervene in this case. *First Hardin National Bank and The Farmers Bank of Vine Grove, Kentucky* v. *Fort Knox National Bank,* C.A. No. 5046 (D.C.W.D. Ky.).

In the second recent case involving the establishment of a branch office of a national bank, the plaintiff state bank seeks to have the branch certificate declared null and void on the basis that the Comptroller's authorization to open a new branch was in error because at the time his permission was given an application for a branch by the state bank for the same area was pending before the state banking commissioner. The state bank also alleges that: the Comptroller violated the provisions of Federal branch banking law (12 U.S.C. 36(c)); that *ex parte* contacts made with the Comptroller's Office by the national bank in question constituted a denial of basic administrative fairness to the plaintiff in violation of the due process clause of the United States Constitution and the Administrative Procedure Act; that the Comptroller's Regulation (contained in 12 CFR 4) relating to the processing of a branch application is invalid under the Administrative Procedure Act; and that the Comptroller's approval of the national bank's branch application not only denied the plaintiff the right to establish a branch, but subjected him to unlawful competition. The *Bank of Sussex County* v. *James J. Saxon,* No. 568-65 (D.C.D.N.J.). In a third action, a branch approval is being contested for the same reasons given in a number of cases presently pending in North Carolina which have been discussed at length in previous issues of the *Review.*[34] *Bank of Haw River* v. *James J. Saxon,* Civil Action No. C-124 G–65 (D.C.M.D.N.C.).

The Comptroller's approval of a branch application is challenged in a fourth action in which the Federal district judge has denied the plaintiff's motion for a preliminary injunction and has held that the plaintiff bank was not entitled to a public adversary hearing in connection with its protest to the Comptroller against the defendant national bank's branch application.[35] Still pending before the court is the question of whether the Comptroller abused his discretion in approving the defendant bank's branch application; however, it has denied the plaintiff's motion for a preliminary injunction on the ground that there was no evidence of any such abuse of discretion. *The Continental Bank* v. *The National City Bank of Cleveland and James J. Saxon, Comptroller of the Currency of the United States,* Civil Action No. C65-484 (U.S.D.C.N.D. Ohio).

The fifth and latest of the recent cases filed against the Comptroller is an action by a state bank in which it is alleged that a branch of a national bank recently approved by the Comptroller should be closed as being in violation of applicable

---

[34] North Carolina branch litigation which involves basically the same issues as are raised in this case was discussed in *The National Banking Review,* 2, June 1965, p. 587; March 1965, pp. 435-436; December 1964, p. 271; September 1964, p. 101; June 1964, p. 611; and 1, December 1963, pp. 270-271.

[35] This ruling is in contrast to the holding of a Federal district court in another action discussed in *The National Banking Review,* 2, December 1964, p. 271, and is similar to court decisions which have held that public adversary hearings are not required in connection with new bank charters. See *The National Banking Review,* 2, December 1964, pp. 270-271; and 1, December 1963, p. 270.

branching laws.[36] The plaintiff contends that the national bank, the main office of which is in a first-class city, may not branch into a second-class city which is less than two miles distant from its home community. Although recent legislation classified any two communities with a common corporate line, as in the instant case, as a single community for branching purposes, the plaintiff contends that this legislation applies only to two second-class cities which have no home office bank. *Security Bank* v. *James J. Saxon, Comptroller of the Currency,* Civil Action No. J-65-C-46 (U.S.D.C.E.D. Arkansas).

A motion to enjoin preliminarily the opening of a new branch by a national bank has been denied by a Federal district court in another case. The motion to enjoin the branch opening was denied because the court found that the plaintiff state-chartered bank failed to establish that it would be irreparably injured by the branch opening and that the plaintiff was unlikely to prevail at the time of trial. The plaintiff bank is contending alternatively that the Comptroller did not apply the proper standard as to what constitutes a village within the meaning and requirement of applicable branching law and that, if the proper standard was applied, a branch at the approved location would nonetheless be illegal inasmuch as the area in which the branch would be located is not an "unincorporated village" within the meaning of the applicable statute, i.e., the area in which the branch would be located is not possessed of some attributes of community life or interest. *Oystermen's Bank & Trust Company* v. *James J. Saxon, Comptroller of the Currency,* Civil Action No. 1717-64, (D.C.D.C. 1964).[37]

In a recently decided case, a United States District Court has held that the Comptroller grossly abused his discretion by approving the *relocation of a branch* of a national bank in a city in which the bank could not lawfully establish a new branch. The defendant national bank received permission to relocate the contested branch to a site 1.7 miles away from its original location but still within the city limits. The bank also received concurrent permission to establish a new branch outside the city, which the plaintiff bank contended was situated so as to service the customers of the defendant's branch which was to be relocated. The court noted that Federal branching law incorporated the provisions of state branching law, which in this case provided that except where the bank's home office is located, no branch shall be established in a city or village in which a state or national bank or branch thereof is then in operation. The court made a finding that the proposed new branch of the defendant national bank outside of the city was in fact a relocation of the bank's existing branch in the city, and that the proposed branch relocation in the city was in fact the establishment of a *de novo* branch. The court stated that the Comptroller took part in a subterfuge in order to evade the language and spirit of the applicable statutory provisions, and that where, as in this case, action involves sham or subterfuge, it is clearly reviewable. *Bank of Dearborn* v. *James J. Saxon, Comptroller of the Currency, et al,* Civil Action No. 23, 628 (D.C.E.D. Mich.).

The same district court—after granting a partial summary judgment on a motion made by the defendant Comptroller of the Currency and holding that the Comptroller is not required to hold a hearing prior to his granting approval of an application to establish a branch, and that he is not bound by state statutory requirements relating to the necessity of a

[36] Federal law (12 U.S.C. 36(c)), which incorporates state law with respect to location standards.

[37] See *The National Banking Review,* 2, September 1964, p. 100.

branch bank[38]—held that the Comptroller of the Currency, in approving the branch in question, acted arbitrarily and capriciously, and abused his discretion under the applicable law in determining whether there was a separate unincorporated village in which the defendant national bank could lawfully establish the contested branch. The court considered the area from the aspects of population, housing, business, geographical distribution of these elements, and other factors which it regarded as possessing the indicia of a community. The court found that the Comptroller's decision on this village question, in approving the establishment of the disputed branch, was not supported by competent and substantial evidence and must have been based upon misplaced confidence in information supplied by the defendant bank. *The Peoples Bank, Trenton, Michigan, et al.* v. *James J. Saxon and Manufacturers National Bank of Detroit, Detroit, Michigan,* Civil Action Nos. 26166, (D.C.E.D., Mich. 1965).

The United States Court of Appeals for the Fifth Circuit has reversed a district court's dismissal of an action brought by a state banking superintendent to enjoin permanently the operation of a *drive-in facility* by a national bank. The court of appeals concluded that the state banking superintendent, who has contended that the drive-in facility was an illegal and separate branch of the national bank, has standing to bring an action to enjoin a violation of applicable branching laws by a national bank.[39] *W. M. Jackson* v. *First National Bank of Valdosta,* No. 21821 (5th Cir. 1965).

An action has been brought by the United States to enjoin the *merger* of two commercial banks, even though the merger previously was given statutory approval by the Comptroller of the Currency pursuant to the provisions of the Bank Merger Act of 1960 (12 U.S.C. 1828(c)). The United States alleges violations of Section 1 of the Sherman Act (15 U.S.C. 1) and Section 7 of the Clayton Act (15 U.S.C. 18). The district court has granted a motion filed by the Comptroller of the Currency to intervene as a party defendant.

In denying the motion of the United States for a preliminary injunction, the court assumed that it had jurisdiction, stated that the major factual question at issue is the relevant geographic market to be considered, and found that the geographic area to be considered is the metropolitan area of St. Louis rather than merely the City of St. Louis, as contended by the United States. It was concluded by the court, for the purposes of this motion, that the resulting bank would have slightly over 20 percent of the deposits and loans of all the banks within the relevant market area. It was also found that these percentages are substantially less than the percentages considered by the Supreme Court in *United States* v. *Philadelphia National Bank,* 374 U.S. 321 (1963) and *United States* v. *First National Bank and Trust Co. of Lexington,* 376 U.S. 665 (1964). Finally, the court concluded that, based on all of the facts and circumstances in evidence, the United States failed to sustain its burden of proof that there was a violation of the Sherman or Clayton Acts. *United States* v. *Mercantile Trust Company National Association and Security Trust Company and Comptroller of the Currency, James J. Saxon,* Civil Action No. 65-C-241(1) (D.C.E.D. Mo.).

XXIV. *Other Litigation*

In an action by a national bank against a state banking commissioner to enjoin the issuance of a *new bank charter,* the state district court of appeal held that

[38] A discussion of the partial summary judgment appeared in *The National Banking Review,* 2, March 1965, p. 436.

[39] See *The National Banking Review,* 2, December 1964, p. 272.

allegations that the commissioner failed to take certain matters into consideration before granting a charter to a second bank approximately one mile away from the protesting national bank were not sufficient to show that the commissioner had violated any of the state banking code requirements that would subject him to judicial review. However, the court stated that the commissioner's discretion in approving an application for a bank charter is not absolute, but rather, is conditioned by several statutory limitations, and that if the commissioner acts or threatens to act in violation of such statutory limitations, his acts or threatened acts may be subject to judicial review. The court further stated that if a bank alleged that the granting of a charter to a second bank in a location approximately one mile away would cause it substantial injury, it was an interested party within the meaning of the state statute granting jurisdiction to the circuit court to hear a complaint for injunction by an interested party alleging a threatened or impending violation of the banking code. *National Bank of Tampa* v. *Green,* 175 So. 2d 545 (Fla. 1965).

In a criminal prosecution for willfully, knowingly, and fraudulently aiding a bank cashier in the *misapplication of bank funds,* making false entries in the books and records of a bank, and willfully, knowingly, and fraudulently filing and causing to be filed with the Comptroller of the Currency false and fraudulent "Reports of Condition" of the bank, a United States Circuit Court of Appeals has held that not only did the evidence warrant submission of the defendant's guilt on all counts to the jury, but that evidence of alleged prior offenses was also properly allowed to go to the jury under careful instructions limiting such evidence to the purpose of showing knowledge and intent during the indictment period. *United States* v. *Daileda,* 342 F. 2d 219 (3rd Cir. 1965).

In another action, it has been held by a state supreme court that when there are sufficient assets to pay the *claims of depositors and creditors,* the depositors and creditors of a failed state bank are entitled to the payment of interest at the legal rate on their claims from the date the bank closed until they are paid. Similarly, the court held that an allowance of interest to the Federal Deposit Insurance Corporation, which was subrogated to all rights of insured depositors of a failed state bank from the date of failure to the date of payment, was mandatory where there were sufficient assets to pay claims of all depositors and creditors. It was further held by the court that when the creditors and depositors of a failed state bank make claims for the principal amounts of their debts and deposits, and the claims are approved by the state bank commissioner and the district court, such approved claims include a mandatory allowance of interest, and that where the state bank commissioner thereafter attempts to order the disallowance of payment of such interest, the creditors and depositors are not required by state law either to file a new claim with the commissioner or to file a petition in appeal to the district court. *Sebring* v. *Federal Deposit Insurance Corporation,* 401 P. 2d 479 (Okla. 1965).

In yet another case, a national bank brought a court proceeding to review the determination of a state commissioner of banking in approving a state bank's application to *establish a branch bank office.* Under applicable branching law, the state bank could not establish or maintain a branch office which is located outside the municipality in which it maintains its principal office; a branch could be established in the same county only when it would be located in a municipality in which no other banking institution has its principal office or a branch office. It was held by the court that the state bank—which formerly had its principal office in a borough and its

branch in a township—could not open a new branch in the township, despite a grant of permission to exchange the location of branch and principal offices, where the admitted purpose of the exchange was to permit the opening of a new branch in that township and the bank's principal office was not in fact moved from the borough to the township. The court stated that the state law did not prohibit the interchange of principal and branch offices where the offices are lawfully established within the same county, but in different municipalities. However, the court also stated that on its objection to the state bank's application for permission to open the branch, the national bank's claim—that the prior interchange of the state bank's offices had been improper—was not objectionable as a collateral attack on the transfer; the national bank's contention was that the state bank's action had been part of a plan to circumvent the statutory prohibition on the establishment of two branch banks in the same municipality. *In re Princeton Bank and Trust Co.*, 208 A. 2d 820, (N.J. 1965).

ROMAN J. GERBER
Associate Chief Counsel,
Office of the Comptroller
of the Currency

Selected Statistical Data

Table No.	*Title of Table*	*Page*
1	Number of national banks and banking offices, by states, June 30, 1965	126
2	Total and principal assets of national banks, by states, April 26, 1965	127
3	Total and principal liabilities of national banks, by states, April 26, 1965	128
4	Capital accounts of national banks, by states, April 26, 1965	129
5	Total and principal assets of national banks, by states, June 30, 1965	130
6	Total and principal liabilities of national banks, by states, June 30, 1965	131
7	Capital accounts of national banks, by states, June 30, 1965	132
8	Status of applications for national bank charters, and charters issued, April 1-June 30, 1965	133
9	Status of applications for national bank charters, and charters issued, by states, April 1-June 30, 1965	134
10	Status of *de novo* branch applications of national banks, by states, April 1-June 30, 1965	135
11	Branches of national banks: in operation March 31, 1965; opened, discontinued, or consolidated, April 1-June 30, 1965; and branches in operation June 30, 1965	136
12	Branches of national banks opened for business, by community size and size of bank, April 1-June 30, 1965	137
13	Mergers, April 1-June 30, 1965	137

Table 1.—Number of national banks and banking offices, by states, June 30, 1965

State	National banks			Number of branches of national banks	Number of national banking offices§
	Total	Unit	With branches		
United States†	4,803	3,521	1,282	8,254	13,057
Alabama	84	59	25	110	194
Alaska	5	0	5	38	43
Arizona	4	1	3	168	172
Arkansas	65	40	25	53	118
California	94	60	34	1,681	1,775
Colorado	117	117	0	0	117
Connecticut	27	11	16	158	185
Delaware	5	3	2	4	9
District of Columbia	8	0	8	46	54
Florida	192	192	0	0	192
Georgia	54	30	24	103	157
Hawaii	2	0	2	39	41
Idaho	9	3	6	91	100
Illinois	415	415	0	0	415
Indiana	125	64	61	247	372
Iowa	102	80	22	24	126
Kansas	170	146	24	24	194
Kentucky	81	40	41	117	198
Louisiana	47	17	30	127	174
Maine	21	8	13	65	86
Maryland	50	24	26	177	227
Massachusetts	94	33	61	312	406
Michigan	97	42	55	377	474
Minnesota	193	191	2	6	199
Mississippi	34	9	25	48	82
Missouri	96	82	14	14	110
Montana	48	48	0	0	48
Nebraska	125	108	17	17	142
Nevada	3	1	2	32	35
New Hampshire	50	32	18	22	72
New Jersey	147	52	95	406	553
New Mexico	34	16	18	49	83
New York	198	105	93	792	990
North Carolina	30	9	21	256	286
North Dakota	42	37	5	5	47
Ohio	223	97	126	489	712
Oklahoma	222	197	25	25	247
Oregon	12	7	5	203	215
Pennsylvania	377	230	147	752	1,129
Rhode Island	4	0	4	53	57
South Carolina	24	5	19	168	192
South Dakota	33	28	5	35	68
Tennessee	75	28	47	185	260
Texas	544‡	544	0	0	544
Utah	13	9	4	54	67
Vermont	27	18	9	27	54
Virginia	121‡	53	68	299	420
Washington	31	14	17	330	361
West Virginia	79	79	0	0	79
Wisconsin	110	98	12	24	134
Wyoming	39	39	0	0	39
Virgin Islands	1	0	1	2	3
D.C. — all*	15	1	14	81	96

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.

† Includes Virgin Islands.

‡ Includes Deposit Insurance National Bank of Dell City, Texas, and Deposit Insurance National Bank of Newport News, Virginia — organized under Section 11 of the Federal Deposit Insurance Act — to operate no longer than a two-year period.

§ Number of banking offices is the sum of total national banks and number of branches of national banks.

Table 2.— Total and principal assets of national banks, by states, April 26, 1965 (Dollar amounts in millions)

State	Number of banks	Assets								
		Total assets	Cash assets§	U.S. Government obligations, net△	State and local securities, net△	Other bonds, notes, net△	Loans and discounts, net△	Federal funds sold	Direct lease financing	Fixed assets
United States†	4,792	$188,244	$30,183	$31,085	$19,956	$2,331	$97,853	$1,413	$116	$2,868
Alabama	84	2,277	386	441	261	23	1,098	17	0	37
Alaska	5	262	35	55	24	9	129	1	0	8
Arizona	4	1,578	179	183	130	21	1,006	2	‡	36
Arkansas	65	1,026	184	166	128	18	501	6	‡	17
California	92	26,461	3,919	3,304	2,640	268	15,213	185	62	448
Colorado	117	2,132	366	379	151	7	1,152	11	1	47
Connecticut	27	1,732	286	175	236	4	977	3	1	39
Delaware	5	23	3	6	‡	1	12	0	0	1
District of Columbia	8	1,319	222	330	66	3	653	14	0	21
Florida	191	4,946	971	1,067	414	99	2,187	41	1	130
Georgia	54	2,486	482	340	196	22	1,371	6	3	48
Hawaii	2	369	37	63	38	‡	215	0	0	12
Idaho	9	651	78	123	57	5	372	‡	0	12
Illinois	413	17,619	2,675	3,184	2,021	350	8,751	203	10	128
Indiana	125	4,248	716	937	359	81	2,030	41	1	54
Iowa	101	1,453	303	297	122	24	667	14	‡	19
Kansas	170	1,772	294	399	206	25	812	4	‡	22
Kentucky	82	1,362	214	290	148	27	646	10	‡	19
Louisiana	47	2,643	519	559	261	18	1,195	35	1	33
Maine	22	448	62	71	45	3	245	9	0	9
Maryland	50	1,885	336	349	166	18	964	16	1	22
Massachusetts	94	5,245	992	609	401	15	2,939	109	‡	64
Michigan	96	7,739	1,147	1,531	932	41	3,877	44	7	90
Minnesota	193	4,027	690	715	365	92	2,064	5	2	62
Mississippi	32	594	96	116	70	5	289	1	0	14
Missouri	94	3,708	704	586	386	22	1,904	33	‡	38
Montana	48	579	74	117	54	9	308	0	‡	12
Nebraska	125	1,572	281	266	138	22	831	3	‡	21
Nevada	3	451	45	79	44	‡	252	10	0	18
New Hampshire	50	427	63	61	28	1	257	7	0	8
New Jersey	146	6,074	716	1,070	867	115	3,145	30	2	89
New Mexico	34	681	107	153	39	8	344	15	‡	12
New York	200	19,590	3,033	2,502	2,396	165	10,440	207	12	238
North Carolina	31	1,723	328	211	167	39	930	1	0	32
North Dakota	42	522	61	119	54	13	257	1	‡	12
Ohio	222	8,588	1,219	1,611	952	99	4,481	54	2	110
Oklahoma	222	3,068	603	629	245	46	1,465	10	1	52
Oregon	12	2,505	352	393	213	74	1,359	24	‡	53
Pennsylvania	378	13,728	1,932	2,328	2,090	159	6,773	90	6	177
Rhode Island	4	756	89	66	171	4	411	3	0	9
South Carolina	24	920	179	164	60	19	460	12	0	19
South Dakota	33	574	73	137	44	10	295	0	0	11
Tennessee	75	3,480	646	606	335	26	1,789	5	0	49
Texas	541	13,430	2,696	2,169	1,187	182	6,646	101	1	313
Utah	13	643	97	58	74	3	397	2	0	10
Vermont	27	264	27	47	20	3	160	2	0	4
Virginia	122	2,996	414	513	274	42	1,682	3	‡	53
Washington	30	3,403	562	561	311	32	1,829	7	0	61
West Virginia	79	978	141	301	80	11	419	6	0	16
Wisconsin	109	2,860	491	553	265	47	1,424	10	1	50
Wyoming	39	393	56	90	24	4	205	1	‡	10
Virgin Islands	1	32	3	7	1	0	20	0	0	‡
D.C. — all*	15	2,342	384	553	101	9	1,221	27	0	30

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.

† Includes Virgin Islands.

‡ Less than $500,000.

§ Cash, balances with other banks, and cash items in process of collection.

△Net of valuation reserves.

Note: Data may not add to totals because of rounding.

Table 3.—Total and principal liabilities of national banks, by states, April 26, 1965
(Dollar amounts in millions)

State	Liabilities						
	Total liabilities	Total deposits	Demand deposits, total	Time and savings deposits, total	Demand deposits, IPC§	Time deposits, IPC§	Federal funds purchased
United States†	$172,825	$165,681	$90,664	$75,017	$69,263	$68,244	$1,797
Alabama	2,082	2,024	1,260	765	958	730	11
Alaska	247	244	127	117	97	69	0
Arizona	1,449	1,402	683	718	542	695	8
Arkansas	939	922	604	318	449	309	5
California	24,682	23,511	10,154	13,357	8,311	11,710	358
Colorado	1,954	1,906	1,052	855	841	783	16
Connecticut	1,590	1,495	964	531	839	480	22
Delaware	21	21	10	11	10	11	0
District of Columbia	1,217	1,167	766	401	677	388	20
Florida	4,533	4,400	2,753	1,647	2,082	1,441	46
Georgia	2,257	2,142	1,445	697	1,035	619	4
Hawaii	326	317	161	156	122	129	0
Idaho	604	589	333	257	261	256	4
Illinois	16,205	15,687	8,534	7,153	6,432	6,748	122
Indiana	3,903	3,692	2,234	1,457	1,642	1,404	68
Iowa	1,337	1,290	851	439	562	430	15
Kansas	1,602	1,571	1,038	533	712	501	10
Kentucky	1,234	1,215	802	413	677	389	0
Louisiana	2,417	2,347	1,601	746	1,168	651	15
Maine	404	384	219	165	192	163	4
Maryland	1,726	1,654	1,047	607	799	566	33
Massachusetts	4,743	4,412	3,208	1,204	2,488	1,116	52
Michigan	7,223	7,032	3,233	3,799	2,450	3,330	18
Minnesota	3,705	3,503	1,931	1,572	1,352	1,496	126
Mississippi	543	526	346	180	237	175	8
Missouri	3,353	3,251	2,138	1,113	1,493	1,007	34
Montana	538	519	272	246	223	233	5
Nebraska	1,432	1,396	962	434	684	427	18
Nevada	416	406	222	184	166	174	0
New Hampshire	383	361	249	113	202	105	3
New Jersey	5,602	5,395	2,706	2,688	2,263	2,610	22
New Mexico	629	616	381	235	277	202	1
New York	17,942	16,674	8,548	8,125	6,318	7,241	234
North Carolina	1,572	1,493	955	538	749	431	24
North Dakota	484	475	242	233	194	221	2
Ohio	7,854	7,546	3,955	3,591	3,049	3,383	52
Oklahoma	2,760	2,695	1,782	914	1,251	853	16
Oregon	2,324	2,259	1,056	1,203	870	1,044	6
Pennsylvania	12,435	12,002	5,882	6,121	4,731	5,610	76
Rhode Island	703	684	276	408	215	372	2
South Carolina	845	790	646	144	517	131	8
South Dakota	532	519	274	244	211	224	2
Tennessee	3,208	3,048	1,795	1,253	1,158	1,139	71
Texas	12,255	11,876	7,491	4,385	5,478	3,726	182
Utah	588	567	266	301	207	277	9
Vermont	239	232	83	149	74	147	‡
Virginia	2,732	2,629	1,384	1,245	1,155	1,171	10
Washington	3,143	3,005	1,679	1,326	1,299	1,317	41
West Virginia	881	860	495	365	383	363	6
Wisconsin	2,646	2,551	1,374	1,177	1,020	1,086	10
Wyoming	357	349	183	167	134	148	1
Virgin Islands	30	28	11	17	9	11	0
D.C. — all*	2,171	2,095	1,356	739	1,224	720	21

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.

† Includes Virgin Islands.

‡ Less than $500,000.

§ IPC deposits are those of individuals, partnerships, and corporations.

Note: Data may not add to totals because of rounding.

Table 4.—Capital accounts of national banks, by states, April 26, 1965
(Dollar amounts in millions)

State	Total capital accounts	Debentures	Preferred stock	Common stock	Surplus	Undivided profits	Reserves
United States†	$15,419	$535	$28	$4,552	$7,252	$2,670	$382
Alabama	195	0	0	62	82	39	12
Alaska	15	‡	0	5	4	5	1
Arizona	129	26	0	30	57	13	3
Arkansas	87	1	0	27	37	20	2
California	1,779	145	0	496	815	314	10
Colorado	178	3	0	60	79	35	1
Connecticut	142	0	0	42	77	22	1
Delaware	2	0	0	1	1	‡	‡
District of Columbia	102	0	0	29	54	19	‡
Florida	413	13	‡	160	173	54	12
Georgia	230	37	0	50	92	28	23
Hawaii	43	10	0	9	14	9	2
Idaho	47	0	0	14	24	7	2
Illinois	1,414	9	0	509	670	183	43
Indiana	345	13	0	86	172	67	7
Iowa	116	0	0	32	54	29	2
Kansas	169	0	1	50	76	41	2
Kentucky	128	0	0	30	64	31	3
Louisiana	226	‡	3	53	131	38	1
Maine	43	0	0	17	15	11	1
Maryland	159	2	0	40	78	34	6
Massachusetts	502	0	0	119	292	84	7
Michigan	516	39	3	137	237	90	10
Minnesota	323	0	0	106	141	71	5
Mississippi	51	1	0	14	34	3	‡
Missouri	356	25	0	101	150	72	7
Montana	41	0	0	16	16	9	‡
Nebraska	140	0	0	40	57	40	3
Nevada	35	0	0	17	15	3	‡
New Hampshire	44	0	0	9	23	11	2
New Jersey	472	21	‡	137	227	77	9
New Mexico	52	0	0	19	19	5	9
New York	1,648	72	20	530	695	222	110
North Carolina	151	15	0	38	75	23	1
North Dakota	37	0	0	13	15	9	1
Ohio	733	24	‡	206	373	125	5
Oklahoma	307	18	0	85	119	82	4
Oregon	182	0	0	60	67	54	‡
Pennsylvania	1,293	22	‡	295	733	228	15
Rhode Island	53	0	0	14	30	9	0
South Carolina	75	0	‡	18	43	13	1
South Dakota	42	‡	0	15	17	9	‡
Tennessee	273	‡	‡	73	143	50	6
Texas	1,175	37	0	406	511	191	31
Utah	55	0	0	15	30	7	2
Vermont	24	‡	1	7	9	6	1
Virginia	264	0	0	80	137	44	2
Washington	261	0	0	78	113	67	2
West Virginia	97	0	0	24	48	21	4
Wisconsin	214	1	0	72	97	35	8
Wyoming	37	1	0	6	19	10	1
Virgin Islands	2	0	0	‡	1	1	0
D.C. — all*	171	0	0	44	96	29	3

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.

† Includes Virgin Islands.

‡ Less than $500,000.

Note: Data may not add to totals because of rounding.

Table 5.—Total and principal assets of national banks, by states, June 30, 1965
(Dollar amounts in millions)

State	Number of banks	ASSETS								
		Total assets	Cash assets§	U.S. Government obligations, net△	State and local securities, net△	Other bonds, notes, net△	Loans and discounts, net△	Federal funds sold	Direct lease financing	Fixed assets
United States†	4,803	$193,599	$31,595	$30,323	$20,460	$2,439	$102,059	$1,059	$188	$2,893
Alabama	84	2,333	401	433	268	28	1,130	21	0	38
Alaska	5	269	35	46	23	13	139	2	0	8
Arizona	4	1,640	203	180	119	40	1,016	20	‡	39
Arkansas	65	1,050	205	152	131	17	521	2	‡	17
California	94	26,632	3,835	3,214	2,713	251	15,613	26	89	449
Colorado	117	2,178	394	340	163	6	1,190	13	2	48
Connecticut	27	1,773	257	194	239	10	1,015	4	1	41
Delaware	5	25	3	6	‡	1	12	1	0	1
District of Columbia	8	1,356	244	329	65	3	677	4	0	21
Florida	192	5,066	922	1,084	444	112	2,298	31	‡	133
Georgia	54	2,592	521	313	205	21	1,437	20	3	50
Hawaii	2	396	56	65	38	‡	220	0	0	12
Idaho	9	663	77	107	60	4	390	6	0	12
Illinois	415	18,204	2,807	3,308	2,003	378	9,108	117	21	129
Indiana	125	4,445	783	935	370	85	2,130	55	1	54
Iowa	102	1,470	306	284	129	26	693	7	‡	19
Kansas	170	1,820	318	379	211	31	850	1	‡	22
Kentucky	81	1,422	262	271	150	24	685	2	‡	19
Louisiana	47	2,628	466	522	269	19	1,265	29	1	35
Maine	21	458	61	72	49	4	255	5	0	9
Maryland	50	1,935	332	337	169	19	1,000	42	3	22
Massachusetts	94	5,504	1,140	590	453	16	3,110	21	3	64
Michigan	97	8,052	1,264	1,523	938	47	4,075	37	7	92
Minnesota	193	4,197	748	696	375	87	2,182	6	2	62
Mississippi	34	600	97	114	71	5	296	0	0	14
Missouri	96	3,870	755	558	393	25	2,025	41	1	37
Montana	48	596	83	109	53	9	323	‡	‡	12
Nebraska	125	1,606	305	243	135	20	866	3	1	21
Nevada	3	472	62	70	45	7	253	11	0	18
New Hampshire	50	438	72	57	31	1	261	6	0	8
New Jersey	147	6,300	786	1,052	893	117	3,284	28	2	89
New Mexico	34	699	112	144	43	7	353	24	‡	12
New York	198	20,619	3,384	2,472	2,472	206	11,118	83	29	240
North Carolina	30	1,758	323	195	166	40	982	2	0	32
North Dakota	42	518	60	111	54	13	264	0	‡	12
Ohio	223	8,877	1,320	1,593	973	91	4,645	79	3	114
Oklahoma	222	3,156	620	612	261	54	1,526	12	1	52
Oregon	12	2,533	346	378	234	38	1,422	18	1	54
Pennsylvania	377	14,169	2,070	2,261	2,080	179	7,108	97	10	178
Rhode Island	4	762	76	61	171	4	431	6	0	8
South Carolina	24	920	176	154	62	24	476	5	0	19
South Dakota	33	576	66	132	44	9	307	0	0	12
Tennessee	75	3,538	691	556	348	24	1,837	6	0	50
Texas	544	13,694	2,704	2,072	1,269	188	6,888	125	‡	305
Utah	13	648	99	52	67	4	405	7	‡	10
Vermont	27	276	33	46	22	3	164	2	0	4
Virginia	121	3,071	452	469	286	40	1,743	9	1	54
Washington	31	3,472	571	524	317	30	1,908	15	1	61
West Virginia	79	1,000	152	289	85	12	436	4	1	16
Wisconsin	110	2,885	480	523	272	46	1,488	4	2	51
Wyoming	39	403	61	86	23	4	216	0	‡	10
Virgin Islands	1	33	3	8	1	0	21	0	0	‡
D.C.—all*	15	2,393	423	546	100	10	1,255	10	0	30

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.
† Includes Virgin Islands.
‡ Less than $500,000.
§ Cash, balances with other banks, and cash items in process of collection.
△Net of valuation reserves.
Note: Data may not add to totals because of rounding.

Table 6.—Total and principal liabilities of national banks, by states, June 30, 1965
(Dollar amounts in millions)

State	LIABILITIES						
	Total liabilities	Total deposits	Demand deposits, total	Time and savings deposits, total	Demand deposits, IPC§	Time deposits, IPC§	Federal funds purchased
United States†	$177,746	$171,528	$94,826	$76,702	$68,987	$69,931	$959
Alabama	2,138	2,091	1,304	786	965	748	2
Alaska	254	249	132	116	101	72	2
Arizona	1,507	1,470	739	731	554	705	0
Arkansas	962	950	626	324	446	311	1
California	24,808	23,977	10,324	13,653	8,198	12,017	59
Colorado	1,999	1,952	1,092	860	834	786	13
Connecticut	1,630	1,563	1,013	550	822	504	4
Delaware	23	22	11	11	10	11	0
District of Columbia	1,254	1,224	809	415	702	401	9
Florida	4,643	4,508	2,741	1,768	2,029	1,523	18
Georgia	2,361	2,298	1,560	737	1,083	658	0
Hawaii	353	347	186	161	124	133	0
Idaho	616	606	341	265	252	264	0
Illinois	16,773	16,127	8,820	7,307	6,219	6,903	142
Indiana	4,098	3,915	2,361	1,554	1,632	1,443	73
Iowa	1,353	1,323	863	460	594	447	16
Kansas	1,651	1,631	1,087	544	703	508	2
Kentucky	1,294	1,276	848	428	674	404	0
Louisiana	2,400	2,350	1,592	757	1,127	669	8
Maine	415	400	229	171	193	167	2
Maryland	1,776	1,706	1,093	613	803	576	31
Massachusetts	4,989	4,655	3,341	1,313	2,393	1,230	47
Michigan	7,530	7,364	3,542	3,822	2,524	3,403	1
Minnesota	3,871	3,719	2,123	1,596	1,369	1,516	44
Mississippi	547	539	355	184	242	179	‡
Missouri	3,514	3,425	2,259	1,166	1,481	1,056	27
Montana	554	535	281	253	218	238	5
Nebraska	1,465	1,429	982	447	682	439	8
Nevada	436	426	239	187	168	179	0
New Hampshire	394	372	257	115	200	107	1
New Jersey	5,817	5,624	2,869	2,755	2,273	2,672	13
New Mexico	647	638	397	241	279	205	‡
New York	18,683	17,503	9,419	8,084	6,426	7,277	141
North Carolina	1,605	1,542	1,000	542	742	446	20
North Dakota	481	471	235	236	188	223	1
Ohio	8,140	7,916	4,217	3,700	3,085	3,482	14
Oklahoma	2,849	2,785	1,845	941	1,253	875	10
Oregon	2,349	2,285	1,076	1,210	847	1,064	0
Pennsylvania	12,874	12,468	6,203	6,265	4,791	5,753	42
Rhode Island	708	687	285	402	207	375	2
South Carolina	843	806	658	147	520	133	1
South Dakota	533	523	273	250	205	225	‡
Tennessee	3,264	3,171	1,879	1,292	1,189	1,165	9
Texas	12,519	12,112	7,631	4,481	5,370	3,825	169
Utah	592	579	273	306	201	279	3
Vermont	252	246	91	155	78	152	‡
Virginia	2,804	2,732	1,447	1,285	1,137	1,213	4
Washington	3,208	3,120	1,759	1,361	1,285	1,346	11
West Virginia	903	887	513	373	391	371	2
Wisconsin	2,668	2,599	1,406	1,193	1,034	1,094	2
Wyoming	367	358	191	168	136	149	1
Virgin Islands	31	29	10	19	8	11	0
D.C.—all*	2,220	2,167	1,412	756	1,244	736	9

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.
† Includes Virgin Islands.
‡ Less than $500,000.
§ IPC deposits are those of individuals, partnerships, and corporations.
NOTE: Data may not add to totals because of rounding.

Table 7.—Capital accounts of national banks, by states, June 30, 1965
(Dollar amounts in millions)

State	Total capital accounts	Debentures	Preferred stock	Common stock	Surplus	Undivided profits	Reserves
United States†	$15,853	$814	$29	$4,578	$7,311	$2,741	$380
Alabama	196	0	0	63	82	39	12
Alaska	15	‡	0	5	4	5	1
Arizona	133	26	0	30	57	18	3
Arkansas	87	1	0	27	37	20	2
California	1,824	145	0	498	815	356	10
Colorado	179	3	0	60	79	36	1
Connecticut	143	0	0	42	79	21	1
Delaware	2	0	0	1	1	‡	‡
District of Columbia	102	0	0	29	54	19	‡
Florida	423	16	‡	165	177	53	12
Georgia	231	37	0	51	92	28	23
Hawaii	43	10	0	9	14	9	2
Idaho	46	0	0	14	25	5	2
Illinois	1,431	10	0	512	677	190	41
Indiana	347	13	0	87	172	67	7
Iowa	117	0	0	32	54	29	2
Kansas	169	0	1	50	77	39	2
Kentucky	128	0	0	31	64	30	3
Louisiana	228	‡	3	53	131	40	1
Maine	43	0	0	17	15	11	1
Maryland	159	2	0	40	78	35	5
Massachusetts	515	10	0	119	304	74	8
Michigan	522	39	3	138	238	94	10
Minnesota	326	0	0	106	141	74	5
Mississippi	53	1	0	14	36	2	‡
Missouri	356	25	0	102	151	73	6
Montana	42	0	0	16	16	10	‡
Nebraska	141	0	0	41	60	37	3
Nevada	36	0	0	17	15	4	‡
New Hampshire	44	0	0	9	23	10	1
New Jersey	484	27	‡	139	229	78	9
New Mexico	51	0	0	19	19	5	9
New York	1,936	330	20	532	696	242	115
North Carolina	152	15	0	38	75	23	1
North Dakota	38	0	0	13	15	9	‡
Ohio	737	24	‡	207	377	126	3
Oklahoma	307	18	‡	85	120	81	4
Oregon	184	0	0	60	67	57	‡
Pennsylvania	1,295	22	‡	295	735	228	15
Rhode Island	54	0	0	14	30	10	0
South Carolina	77	0	‡	18	43	14	1
South Dakota	43	‡	0	15	19	8	‡
Tennessee	273	‡	‡	74	143	50	6
Texas	1,175	37	0	407	513	188	30
Utah	56	0	0	15	32	7	2
Vermont	24	‡	1	7	10	5	1
Virginia	268	‡	0	82	141	44	2
Washington	263	0	0	79	113	70	2
West Virginia	97	0	0	24	49	20	5
Wisconsin	217	1	0	74	100	35	8
Wyoming	36	1	0	6	19	10	1
Virgin Islands	2	0	0	‡	1	1	0
D.C.—all*	173	0	0	44	96	31	3

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.
† Includes Virgin Islands.
‡ Less than $500,000.
NOTE: Data may not add to totals because of rounding.

Table 8.— Status of applications for national bank charters, and charters issued, April 1-June 30, 1965

Applications carried over from March 31, 1965	80
6 Conversions	
74 Primary	
Applications received April 1-June 30, 1965	31
4 Conversions	
27 Primary	
	111
Applications approved April 1-June 30, 1965	16
8 Conversions	
8 Primary	
Applications rejected April 1-June 30, 1965	60
0 Conversions	
60 Primary	
Applications abandoned April 1-June 30, 1965	7
1 Conversions	
6 Primary	
Applications pending as of June 30, 1965	28
1 Conversions	
27 Primary	
	111
* * * * *	
New national banks chartered April 1-June 30, 1965	33
9 Conversions	
24 Primary	

Table 9.—Status of applications for national bank charters,* and charters issued,* by states, April 1-June 30, 1965

State	Received‡	Approved	Rejected	Abandoned	Pending June 30, 1965	Charters issued
United States†	111	16	60	7	28	33
Alabama	2	0	2	0	0	0
Alaska	0	0	0	0	0	0
Arizona	0	0	0	0	0	0
Arkansas	2	0	0	0	2	1
California	1	0	1	0	0	3
Colorado	1	0	1	0	0	0
Connecticut	1	0	1	0	0	0
Delaware	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0
Florida	10	1	6	1	2	1
Georgia	4	0	2	0	2	0
Hawaii	1	0	0	1	0	0
Idaho	0	0	0	0	0	0
Illinois	6	0	6	0	0	3
Indiana	0	0	0	0	0	0
Iowa	2	1	1	0	0	2
Kansas	2	0	2	0	0	1
Kentucky	0	0	0	0	0	0
Louisiana	3	0	2	0	1	0
Maine	0	0	0	0	0	0
Maryland	1	0	0	0	1	1
Massachusetts	0	0	0	0	0	1
Michigan	4	2	2	0	0	2
Minnesota	2	0	0	1	1	0
Mississippi	9	3	3	1	2	2
Missouri	5	1	3	1	0	2
Montana	7	2	4	0	1	0
Nebraska	2	1	1	0	0	0
Nevada	1	0	1	0	0	0
New Hampshire	1	0	0	0	1	0
New Jersey	5	0	2	1	2	3
New Mexico	2	0	2	0	0	1
New York	4	1	2	0	1	0
North Carolina	0	0	0	0	0	0
North Dakota	0	0	0	0	0	0
Ohio	4	1	1	0	2	2
Oklahoma	3	0	2	0	1	0
Oregon	1	0	0	0	1	0
Pennsylvania	0	0	0	0	0	0
Rhode Island	0	0	0	0	0	0
South Carolina	2	0	2	0	0	0
South Dakota	0	0	0	0	0	0
Tennessee	5	1	3	0	1	0
Texas	3	1	1	0	1	5
Utah	1	0	1	0	0	0
Vermont	0	0	0	0	0	0
Virginia	1	1	0	0	0	0
Washington	5	0	3	0	2	1
West Virginia	2	0	1	0	1	0
Wisconsin	2	0	0	0	2	1
Wyoming	2	0	2	0	0	1
Virgin Islands	1	0	0	1	0	0
Guam	1	0	0	0	1	0

* Includes conversions.
† Includes Virgin Islands and Guam.
‡ Includes applications pending as of March 31, 1965.

Table 10.—Status of de novo branch applications of national banks, by states, April 1-June 30, 1965

State	Received‡	Approved	Rejected	Abandoned	Pending June 30, 1965
United States†	428	163	42	14	209
Alabama	5	3	0	0	2
Alaska	4	1	0	0	3
Arizona	6	0	2	0	4
Arkansas	6	3	0	0	3
California	61	23	14	0	24
Colorado	0	0	0	0	0
Connecticut	9	5	1	1	2
Delaware	0	0	0	0	0
District of Columbia	2	0	0	0	2
Florida	0	0	0	0	0
Georgia	4	1	0	0	3
Hawaii	0	0	0	0	0
Idaho	9	1	1	0	7
Illinois	0	0	0	0	0
Indiana	6	2	0	0	4
Iowa	5	4	0	0	1
Kansas	1	0	0	0	1
Kentucky	6	4	0	0	2
Louisiana	5	2	0	0	3
Maine	3	2	1	0	0
Maryland	9	5	0	1	3
Massachusetts	11	7	0	1	3
Michigan	35	14	0	2	19
Minnesota	0	0	0	0	0
Mississippi	10	2	1	0	7
Missouri	1	0	0	0	1
Montana	0	0	0	0	0
Nebraska	0	0	0	0	0
Nevada	1	1	0	0	0
New Hampshire	0	0	0	0	0
New Jersey	18	9	0	2	7
New Mexico	5	4	0	0	1
New York	57	15	6	4	32
North Carolina	16	4	0	2	10
North Dakota	1	0	0	0	1
Ohio	26	13	1	0	12
Oklahoma	1	1	0	0	0
Oregon	4	1	1	0	2
Pennsylvania	25	11	5	1	8
Rhode Island	0	0	0	0	0
South Carolina	8	4	0	0	4
South Dakota	4	2	0	0	2
Tennessee	14	9	0	0	5
Texas	0	0	0	0	0
Utah	3	1	0	0	2
Vermont	1	0	0	0	1
Virginia	34	6	8	0	20
Washington	9	3	1	0	5
West Virginia	0	0	0	0	0
Wisconsin	3	0	0	0	3
Wyoming	0	0	0	0	0
Virgin Islands	0	0	0	0	0
D.C. — all*	6	0	0	0	6

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.
† Includes Virgin Islands.
‡ Includes applications pending as of March 31, 1965.

Table 11.—Branches of national banks: in operation March 31, 1965; opened, discontinued, or consolidated, April 1-June 30, 1965; and branches in operation June 30, 1965

State	Branches in operation Mar. 31, 1965	Branches opened for business April 1-June 30, 1965	Existing branches discontinued or consolidated April 1-June 30, 1965	Branches in operation June 30, 1965
United States†	8,083	179	8	8,254
Alabama	109	1	0	110
Alaska	38	0	0	38
Arizona	168	0	0	168
Arkansas	50	3	0	53
California	1,657	25	1	1,681
Colorado	0	0	0	0
Connecticut	155	3	0	158
Delaware	4	0	0	4
District of Columbia	46	0	0	46
Florida	0	0	0	0
Georgia	101	2	0	103
Hawaii	39	0	0	39
Idaho	90	1	0	91
Illinois	0	0	0	0
Indiana	245	2	0	247
Iowa	23	2	1	24
Kansas	24	0	0	24
Kentucky	115	2	0	117
Louisiana	126	1	0	127
Maine	63	2	0	65
Maryland	173	4	0	177
Massachusetts	306	6	0	312
Michigan	365	13	1	377
Minnesota	6	0	0	6
Mississippi	46	2	0	48
Missouri	14	0	0	14
Montana	0	0	0	0
Nebraska	16	1	0	17
Nevada	31	1	0	32
New Hampshire	20	2	0	22
New Jersey	394	12	0	406
New Mexico	46	3	0	49
New York	771	22	1	792
North Carolina	252	4	0	256
North Dakota	5	0	0	5
Ohio	475	14	0	489
Oklahoma	25	0	0	25
Oregon	200	3	0	203
Pennsylvania	734	19	1	752
Rhode Island	53	0	0	53
South Carolina	164	6	2	168
South Dakota	35	0	0	35
Tennessee	180	5	0	185
Texas	0	0	0	0
Utah	54	0	0	54
Vermont	27	0	0	27
Virginia	285	15	1	299
Washington	327	3	0	330
West Virginia	0	0	0	0
Wisconsin	24	0	0	24
Wyoming	0	0	0	0
Virgin Islands	2	0	0	2
D.C. — all*	79	2	0	81

* Includes national and nonnational banks in the District of Columbia, all of which are supervised by the Comptroller of the Currency.
† Includes Virgin Islands.

Table 12.—Branches of national banks opened for business, by community size and size of bank, April 1-June 30, 1965

Category	April 1-June 30, 1965
In cities with population:	
Less than 5,000	44
5,000 to 24,999	72
25,000 to 49,999	18
50,000 to 99,999	13
100,000 to 249,999	13
250,000 to 499,999	5
500,000 to 1,000,000	4
over 1,000,000	10
TOTAL	179
By banks with total resources (In millions of dollars)	
Less than $ 10.0	29
10.0 to 24.9	27
25.0 to 49.9	16
50.0 to 99.9	17
100.0 to 999.9	55
over 1,000	35
TOTAL	179

Table 13.—Mergers,* April 1-June 30, 1965

Applications carried over from March 31, 1965	22
Applications received April 1-June 30, 1965	17
Disposition of applications: April 1-June 30, 1965	
Approved	26
Disapproved	1
Withdrawn	1
Pending June 30, 1965	11
Transactions completed—Total	27
Mergers	17
Consolidations	3
Purchase of assets	7

The aggregate total of capital stock and capital accounts for certificates issued are as follows:

	Charter or purchasing bank	Merg., consol. or selling bank	Combined
Capital stock	$ 88,217,702	$ 6,270,318	$ 95,756,402
Capital accounts	356,406,084	24,556,095	377,474,841

* Includes mergers, consolidations, and purchase and sale transactions where the emerging bank is a national bank.

BOOK REVIEWS

The Federal Reserve and the American Dollar. By JAMES L. KNIPE. Chapel Hill: The University of North Carolina Press, 1965. pp. xiv + 321. $8.00.

The writing of books is hard work and the publication of them is costly. Why, then, was this book written and published? Dr. Knipe spent three years as a consultant to the Federal Reserve Board where he was admitted to meetings of the Board and the Federal Open Market Committee. During the latter part of his residency, he supervised the assembly of the Board's replies to the CMC questions. The frustrations he probably experienced during this later process may explain why he felt impelled to write a book; but he should have been saved from himself. Where were the publisher's readers?

The author begins by saying that "this is a history and evaluation of what has happened in the field of American monetary management since 1946, followed by an outline of the steps which might be taken to meet the problems shaping up for the near future." It will be judged on the basis of his own terms of reference: history, evaluation, and suggestion.

The history is thin and pallid. What passes for background comment sounds like an unculled collection of newspaper clippings. Little is said about the period of Dr. Knipe's residency that has not already appeared in public print. New insights fail to emerge from the recital. The economic history used for an evaluation of monetary policy consists of a rigid and limited sort of business cycle analysis: rigid since the author believes that business fluctuations are truly cyclical and repetitive in nature; limited since he confines his attention mainly to two economic series, industrial production and prices. The analysis is jargon-laden and cryptic. (The author seems to be obsessed with the word "thrust.") He appears to be unaware of the work done on monetary history by Friedman and Schwartz, by Harold Barger, or by Brunner and Meltzer.

The evaluation is a strange combination of elements. The author appears to think that the Federal Reserve has done about as well as it could in its fight with the "politicians." Dr. Knipe seems to mistrust the democratic process; his view of elected officials is almost always apprehensive. (One exception: he admires President de Gaulle.) Dr. Knipe at no stage recognizes the possible existence of politics within the sprawling bureaucracy of the Federal Reserve System. He clearly shares Chairman Martin's worry about the eroding value of the dollar, but he never penetrates the basic problem of the conflicts of objectives that are inevitably faced in forming monetary policy. About as close as he gets is an oblique suggestion that the unemployment statistics are partly phony.

Dr. Knipe's principal criticism of the Federal Reserve Board concerns its bad prose style. The policy record of both the Board and of the FOMC are undoubtedly obscure, and Board publications are generally pallid and lifeless. But Dr. Knipe must know why the prose is so bad since he supervised the writing of some of it and spent many hours watching it being written! No committee or group has ever managed to achieve a distinctive prose style; even the Supreme Court assigns the preparation of opinions. The flaw in Federal Reserve Board publications is not syntax but logic. On the score of prose style, Knipe does not better the System record.

Knipe's suggestions for reform of the Federal Reserve turn out to be quite unoriginal and not very convincingly argued: He would (1) refund a large fraction of the System portfolio into special Treasury issues, and (2) adopt some version of the Canadian-type discount rate led by the market for Treasury bills. The first suggestion, though relatively harmless, is surprising since Dr. Knipe seems unaware of the reduction in Federal Reserve independence this plan would entail. The second suggestion has already been debated more maturely elsewhere.

If Dr. Knipe felt compelled to write a book, he missed an unparalleled opportunity to do one within the area of his competence. By profession he is a management consultant, and must therefore have an interest in the subject of organization for decision making.

How could a person observe at short range the structure of the System without understanding why it sometimes does such strange things in such strange ways? It takes a sense of history to understand how present Federal Reserve organization came about from successive compromises, but the informal elements in the structural organization should have intrigued a management consultant.

The influence of persons and personalities upon the decision-making process is also neglected. Dr. Knipe apparently felt that his obligation to respect secrecy with regard to a client's affairs led him to avoid all color of persons or groups. The Federal Reserve does not encourage the projection of strong personal images, but the agency is not as drab as Dr. Knipe (unintentionally?) pictures it.

A history of Federal Reserve policy formulation is badly needed; Barger made a far better effort than Knipe, but the definitive work has yet to be written.

ROLAND I. ROBINSON
Michigan State University

The Random Character of Stock Market Prices. Ed. by PAUL COOTNER. Cambridge, Massachusetts: The M.I.T. Press, 1964, pp. ix + 510. $15.00.

This somewhat esoteric book deals with the behavior of stock market prices over time, and whether it is possible to predict stock prices from their past histories. Stock market traders roughly divide themselves into three groups: the chartists, the fundamentalists, and the psychologists. There is obvious basic agreement that, in order to profit, one should buy stocks at lower prices than one sells them. However, stock market traders follow separate theories of timing.

For the most part, the articles in this book deal explicitly with the claims of the chartists, and implicitly with those of the psychologists which are tested by sophisticated statistical techniques examining whether there are any systematic patterns of stock prices. Tests of the fundamentalist positions are, at best, only implicit in some of the articles.

The chartists believe that the past record of stock prices gives clues to the future. According to this view, there are patterns and resistance levels which the wise trader reckons with and exploits for his gain. These are not easily recognized, and there is much room for judgment. To suppose otherwise, implies that many could read the signs, and by speculating reap large profits. However, if this were true, the very sequence of purchases and sales required for speculation to be profitable would eliminate systematic price patterns and erase profitable opportunities. Consequently, the difficult art of stock augury remains a mystery to many. Although academics scoff at the belief in price patterns, there are probably very few with an active interest in the stock market who fail to study carefully the charts of their favorite price index.

The fundamentalists, who may also be chartists, look for factors outside the stock market before making their predictions. They study the prospects of the company, the industry outlook, and the general state of the economy. Some also consider certain technical matters such as the volume of short sales (since the larger the volume the more bullish the market, because there must eventually be more covering purchases) and odd-lot trading (which represents the position of the amateurs, the "wise" trader taking a position opposite to them).

The stock market psychologist focuses his attention on what the other traders are going to do (and assumes they do not peek back at him like the mouse in the Skinner box). Keynes described the strategy of the psychological trader by analogy to a certain beauty contest in which the prize goes to the man who guesses which girl the judges will choose as the most beautiful, instead of trying to decide which girl he himself thinks is most beautiful. If the psychologist dominated trading, there might be cumulative movements of stock prices, and the faith of the chartists would be justified.

The second article in the book, and also the first and the most important study of stock market prices, is the 1900 doctoral dissertation by Louis Bachelier. (It is an English translation from the original French by A. James Boness.) Bachelier's work, which was far ahead of his time and neglected for many years, studied stock prices as a random process, developed the concept of a perfect speculative market, and derived therefrom a large number of important results in mathematical probability. He also supported his theorizing with empirical evidence.

Many of the scholarly studies of stock prices in this edition reach the conclusion that the past history of prices is of no value in predicting future prices, and that the best predictor of the price at the next or more distant transaction is the last observed price. In other words, stock prices take a random walk. This is M. G. Kendall's conclusion in his classical study reprinted in this volume. It is apparently confirmed by the results of Arnold Moore and Arnold B. Larsen whose articles are also in the book.

It should also be noted that some scholars who have examined the distribution of changes in stock prices have concluded that either the change in the logs of stock prices (M. F. M. Osborne) or the percentage change of stock prices (Sidney S. Alexander) is normally distributed. Therefore, increases or decreases are equally likely, and symmetrically distributed about the mean. These investigations usually uncover the interesting fact that outliers, large price changes, occur much more frequently than would be expected on the hypothesis of normality. There is more on this point below.

To my mind, the random-walk hypothesis encounters a difficulty which also troubled some of the economists who commented on Kendall's paper when he originally read it at a meeting of the Royal Statistical Society. (Unfortunately, the discussion is not reprinted, but can be found following Kendall's article in vol. 116 of the *Journal of the Royal Statistical Society*). Consider a very simple theory of stock prices: Prices are a given multiple of expected earnings. The latter in turn depend on the present and future prospects of the company. Although stock prices may change from transaction to transaction for many reasons unrelated to earnings, say because of unexpected personal events which require the purchase or sale of stocks, assume that stock prices change whenever something happens to change expected earnings. Thus, if p_t is the price of the stock at time t, x_t is expected earnings and u_t is a random variable, then a possible mathematical translation of the simple theory is:

$$(1) \qquad \log p_t = \log x_t + u_t$$

It is impossible to verify (1) because there are no direct measures of expected earnings. Nevertheless, the fact that stock prices tend to move together lends credibility to the simple theory because there obviously are common factors which influence the earnings of every company.

According to the simple theory represented by (1), it is implausible that changes in log p_t are successively independent or, in other words, that the first differences of the logs of prices take a random walk. Although information about events which affect earnings may diffuse rapidly among traders, it does not disseminate instantaneously. It follows that prices should respond with some delay to changes in expected earnings and, therefore, should exhibit some chronological dependence consistent with a distributed lag hypothesis.

Arnold Moore's results are pertinent, since he finds that, although the autocorrelation coefficients of the first differences of log p_t, measured at weekly intervals, are close to zero, they are generally negative. This implies that the regression coefficient of log p_t on log p_t–1 is slightly less than one in support of a distributed lag hypothesis. Since his results pertain to stocks of individual companies, using price data at weekly intervals, it may well be that, for shorter intervals, the Moore effect will be more pronounced.

Cootner, because his economics dominates his statistics, proposes a rather complicated model which can be reduced to the simple one sketched above. He postulates two kinds of traders—insiders (or professional traders) and outsiders (or amateur traders)—to invoke a mechanism that could produce a rapid but not instantaneous diffusion of information sufficient to undermine the random-walk hypothesis.

This line of work suggests some interesting possibilities. For instance, one might predict that a less actively traded stock presents more usable price dependence to the interested trader than an actively traded stock, so that the volume of trading might enter the picture. In addition, direct tests of autocorrelation are possible via a careful study of stock prices before and after ex-dividend days.

In the first of his two articles reprinted in the book, Alexander proposed a filter rule of stock trading in order to detect nonrandom stock price movements, which he claimed was profitable. In his second article the claim is much attenuated. Alexander's rule is "if the market moves up 5%, go long and stay long until it moves down 5% at which time

sell and go short until it moves up 5%" (p. 214). He reports that this rule gives an average profit per transaction before commissions as follows:

1897-1914, 2.9%; 1914-1929, 2%; 1929-1959, 2.5%.

Alexander cites these figures as evidence in support of his hypothesis of dependence. However, his findings are also consistent with independence. To see why, we must study Benoit Mandelbrot's work, reprinted in the book, on the distribution of speculative prices.

Mandelbrot assumes that the first differences of the logs of prices are independent random drawings from a distribution with a finite mean and an infinite variance. The distribution is one of a class of stable laws which includes the normal distribution, and which is used to generalize the Central Limit Theorem. The stable laws are the asymptotic distributions of the sum of a large number of independent, identically distributed, random variables. Mandelbrot asserts that the evidence contradicts the hypothesis that the first differences of the logs of prices are normally distributed because, according to the normal hypothesis, there should not be so many observations in the tails of the empirical distributions. As a matter of fact, as noted above, virtually every student of the distribution of prices has commented on their leptokurtic character without further analysis, and it has become a common practice to reject outliers from the calculation of summary statistics of the distribution.

Mandelbrot uses all of the data, and argues that the empirical distribution is a member of the family of stable laws. In a nutshell, his distribution implies that prices change by a small amount most of the time, but that occasionally, with a frequency larger than normally expected, prices jump up or down.

This bears directly on Alexander's filter. Mandelbrot's theory predicts that when stop-loss orders are set off by a 5 percent filter, there is a positive probability that the stop-loss order cannot be executed as desired because the next price jumps beyond the prescribed level. Unlike a normal process, the price series generated by a stable law with infinite variance occasionally moves in large jumps, so that the brokers are able to execute a sell order only at a lower than stipulated price and a buy order only at a higher than stipulated price, because in the intermediate range there were no transactions. This should come as no surprise to practical traders. It is remarkable that this property of stop-loss orders is a direct consequence of the stable law which, according to Mandelbrot, fits the data well.

Alexander, in his second article, took Mandelbrot's criticism seriously, without, however, mentioning him by name. He recalculated the profits of a 5 percent filter (among others) with a rule which assumes orders are executed at closing prices. As a result, he obtains for the average profit per transaction before commissions the following:

1897-1914, 0.8%; 1914-1929, −0.2%; and 1929-1959, 1.2%

These are substantially smaller than his first results.

If subsequent research bears out Mandelbrot—an example is Fama's article reprinted in this volume—then some commonly accepted economic doctrines will require revision. For instance, the popular quadratic utility function cannot give sensible answers for portfolio selection, because there is no finite expected value for a function which is quadratic in random variables lacking a finite variance. In such a world, bounded utility functions can always be guaranteed to give finite expected values. However, variance would not be a useful measure of risk, and one must return to fundamentals by calculating directly the probability of events unfavorable to the decision maker. For example, risk averters might reject those prospects for which the probability of a disastrous outcome is too high. Speculation would be much riskier than most academic economists believe, and the conventional view of risk-averse speculators might have to vanish from the popular textbooks. Perhaps only those entrepreneurs with strong nerves and a taste for risk become speculators. This would not surprise Frank Knight, but should be food for thought for many economists.

In total, the book contains 21 articles by 18 authors, and most of these are reprints from other publications. Some are abstracts of, or chapters from, unpublished dissertations. Their quality is uniformly high. Of the 21 articles, 16 deal more or less directly with stock prices, and 5 analyze option prices, a

fascinating field of inquiry for students of expectations formation.

Because some of the articles are photo-offsets of the originals, the reader's eyes may strain. Kendall's article is in exceedingly small type, and the double-columned articles of Mandelbrot and Fama are also hard to read. In view of the high price of this book, it is disappointing to discover there is no index, no comprehensive bibliography, and no list of errata. The authors must assume the responsibility for poorly labelling their tables. Nevertheless, despite these shortcomings, the book is likely to remain a useful reference volume for students of the subject. General economists will find it a sustained example of close interplay between theory and measurement.

LESTER G. TELSER
The University of Chicago

Regulation Q: Issues and Alternatives. By LAWRENCE S. RITTER. A Study Prepared for the Trustees of the Banking Research Fund, Association of Reserve City Bankers, Chicago, April, 1965. pp. 38. $1.00.

The purpose of this booklet, according to Professor Ritter, "is to clarify the relevant issues" surrounding Regulation Q, "rather than to set forth firm conclusions as to the form that the Regulation should take in the months and the years ahead." He starts out by reviewing the adoption of "Q" during the Great Depression, amidst a flood of bank failures. In this regard, the conditions of terrific pressure, even panic, under which the Regulation was born in mid-1933 might have been underlined to a somewhat greater extent. For example, it may be more than coincidence that the National Industrial Recovery Act, with its complex set of controls for putting floors under prices (analogous to ceilings on rates), was passed on the same day. But the NIRA soon was abandoned while Regulation Q lives on.

Ritter's background chapter also traces changes in the rate ceilings over the years, and reviews recent "positions" on "Q" taken by the Commission on Money and Credit (1961) and advisory committees to the Comptroller of the Currency (1962) and President Kennedy (1963). He notes that a majority of all three groups were in favor of putting "Q" on a standby basis.

The next two sections of the booklet deal with the impact of the Regulation on sources and uses of bank funds. Looking first at sources, Ritter fixes upon the big rise in savings and time deposits at banks since 1957 when "Q" ceilings were relaxed for the first time since 1936. He then says "there is little doubt that the lion's share of the expansion stemmed from the improved competitive position of the banking industry following the lifting of the rate ceilings to levels more consistent with other interest rates." To help make the point, a table on page 14 shows that time and savings deposits in banks grew only $16 billion in the eight years from 1949 through 1956, whereas they grew by a remarkable $75 billion from 1957 through 1964.

It is true, of course, that the growth of time money in banks over the last eight years would not have been possible if "Q" ceilings had been held at the 1957 levels. But it is not true that the ceilings severely retarded such growth prior to 1957, after which it was suddenly released. This distinction is not clearly made in the booklet, though Ritter does suggest that "Q" had little impact, in the sense that it may have held rates of some banks below desired levels, until late 1955 at the earliest. In other words, even if "Q" had never existed, it is very likely that time and savings deposit growth would have accelerated substantially from 1957 to the present, in contrast with the earlier period, for at least three reasons: (1) the uptrend in interest rates generally, and in bank savings rates, steadily increased the "opportunity cost" of holding demand deposits at the regulated "zero" interest rate, (2) the sluggish growth of demand deposits led bankers to seek time money more aggressively, the prime example being the introduction of negotiable certificates of deposit, and (3) the rise in personal incomes led to a greater volume of savings.

Turning to "Q's" impact on uses of funds, Ritter ties relaxation of the rate ceilings to increased bank buying of municipals (at the expense of governments) and to the decline in cash as a proportion of total bank assets. Again, it needs to be emphasized that these developments followed a rise in time and savings deposits which would have occurred

even if "Q" had never existed. This section also includes some badly needed commentary on the matter of the "profitability of time and savings deposits," a question which has occupied enough space in learned journals to reveal a considerable lack of understanding about how banks work. Ritter explains in one sentence what should have been obvious without benefit of a vast sifting of statistics: "As a result of these and other adaptations to their new circumstances, banks have *made* time and savings deposits profitable." The real question is whether these adaptations are good for financial stability in the long run, and this involves the "quality of credit," a matter truly deserving of further research.

"Issues and alternatives" are skillfully summarized in the fourth section of the booklet. Arguments against the regulations are stressed, including the fact that such controls distort allocation of resources, "both real and financial," and that the ceilings in themselves may lead banks to pay higher rates because they suggest a "legal" or "best" rate.

Professor Ritter cites my doctoral thesis (Michigan, 1965) as one bit of empirical evidence which casts doubt on the validity of the main argument in favor of rate ceilings: that they prevent destructive rate competition for deposits which leads to deterioration in credit quality and bank failures. While I very much appreciate being mentioned, I feel it necessary to point out that my study of the 1920's does not square entirely with the brief summary of it on pages 29 and 30 of the booklet: "Furthermore, a recent intensive study of rate competition and the quality of bank assets during the 1920's concluded that there was little evidence of either destructive rate competition or deterioration in the quality of bank assets during that period." No, what my work indicated was that in the 1920's there was little or no *relation* between either changes or levels of interest rates on time and demand deposits of banks and various measures of declining credit quality. Certainly the quality of bank credit *did* deteriorate very badly. But this deterioration was associated with factors *other than* changing *rates* of interest on deposits. One factor, apparently, was the rising proportion of time and savings to total deposits during the twenties, which took place while rates on the various types of deposits were relatively stable in comparison with most interest rates. The rate regulations adopted in 1933 were not only *not* designed to affect deposit composition, but in fact have apparently *encouraged* the renewed rise in time and savings deposits by prohibiting interest on demand deposits during a period of generally rising rates. This, incidentally, is one example of why Regulation Q cannot really be discussed or analyzed separately from "prohibition," despite the disposition of some to steer clear of examining "prohibition" as an issue that is "too hot" to handle in a political sense.

Professor Ritter notes the inequity of controlling rates of interest on time and savings deposits, and not doing so in the case of competing financial institutions and instruments. He also notes the practically impossible task the authorities would face if they tried to extend controls to those instruments which compete with negotiable bank CDs—commercial paper, U. S. Treasury bills, etc. His conclusion is that the best thing to do is to put Regulation Q on a standby basis, a course recommended by several distinguished groups of authorities, as cited above.

In only 38 pages, Professor Ritter does a splendid job of covering the essentials of what Regulation Q has meant to the banking system. Hopefully, the brevity of this fine piece will help give it the readership by bankers that it deserves.

ALBERT H. COX, JR.
First National Bank in Dallas

Time Deposit Growth and the Employment of Bank Funds. By GEORGE R. MORRISON and RICHARD T. SELDEN. Chicago: Association of Reserve City Bankers, 1965. pp. ii + 90. $1.00.

The extraordinary growth of bank time deposits in the past 10 years has generated a parallel increase in banker demand for guidance on how to invest properly the funds obtained, and on how much can profitably be paid for time deposits. This study is, in the proximate sense, a response to enlarged banker demand for information, but it deals with a topic of crucial concern for monetary analysis and policy.

The substantive argument includes an analysis of the forces underlying the upsurge in time deposits (Chapter II); a discussion of deposit structure and bank liquidity provisions (Chapter III); a review of recent shifts in bank asset structure (Chapter IV); an analysis of the association between deposit structure and asset allocation (Chapter V); a chapter on the much-disputed question of time deposit profitability (Chapter VI); and a treatment of public policy questions (Chapter VII).

Morrison and Selden argue that time deposit growth in the past decade primarily reflects the increased yields on time deposits relative to other financial assets. While higher ceiling rates under Regulation Q have been a major determinant, the willingness of banks to bid more aggressively for time deposits is explained by the abundance of attractive lending and investment opportunities. The shifting structure of bank liabilities toward time accounts does not, they contend, automatically reduce deposit volatility. Savings deposits are found to be less volatile than other deposit categories at a sample of 53 banks, but CDs may be more unstable than IPC demand deposits. The evidence presented on deposit volatility is not conclusive (as they recognize) since the data used are for a single year; but it is a useful addition to factual knowledge.

It has been rather widely assumed that growth in time deposits and the rise in interest payments on time accounts have led to a marked readjustment of bank earning assets, with a consequent reduction in the liquidity of bank asset portfolios. A striking finding of the study, however, is that changes in time deposits at 53 sample banks from 1960–1963 bore little relation to changes in asset portfolios. One possible reason for this conclusion is that the authors do not distinguish between classes of time and savings deposits in correlations of deposit changes and asset changes. This is most surprising in view of their emphasis on the difference in volatility of CDs and savings deposits and its implications for asset selection. Banker responses to the authors' questionnaire on asset-allocation rules also would have suggested the desirability of distinguishing savings deposits from other categories of time accounts.

Global measures such as the loan-deposit ratio may suggest an appreciable deterioration in the liquidity of banks' assets during recent years, the authors argue, but developments within loan and investment portfolios indicate substantial gains in the more liquid elements of the portfolio, including loans to banks, CCC certificates, municipal securities, and Federal agency issues. However, the conclusion that ". . . bank assets appeared to be definitely more liquid late in 1963 than four or five years earlier" (p. 32) may leave some readers blinking. The conclusion derives partly from comparing bank asset structure in December 1963 with December 1959 —the latter date was near the end of a period of extremely tight money. It also results from assigning substantial importance as a liquidity source to cash throwoff from consumer and mortgage loans. Between December 1958 and December 1963, business loans and loans to nonbank financial institutions, consumer loans, real estate loans, and municipal securities holdings all increased as a percentage of total bank credit. The principal offset was a decline in the proportion of Treasury securities with more than a year to maturity. Is it obvious that such changes in earning asset structure point definitely to a more ample liquidity cushion?

Morrison and Selden's treatment of the theory of time deposit profitability is more satisfactory than anything this reviewer has seen elsewhere. They distinguish carefully between the individual bank and the system, and recognize the need to consider the question in the context of Federal Reserve policies designed to stabilize economic activity. Empirically, they show that net earnings rates during 1963 at their 53-bank sample were not significantly related to the percentage of deposits in time accounts. They also argue, however, that marginal returns attributable to savings deposits at the sample banks were quite high.

Morrison and Selden estimate marginal costs of granting credit and servicing deposits and of marginal gross revenue produced by deposits, capital, and labor inputs. Marginal cost estimates were derived by regressing operating expenses of 41 sample banks in 1963 on 5 classes of earning assets and the number of nonofficial employees—the latter variable serving as a rough measure of the output of deposit services. Marginal revenue estimates were obtained by regressing gross earnings (adjusted to a fully

taxable basis) on deposit categories, capital accounts, and numbers of employees.

The results that emerge are startling. To illustrate, Morrison and Selden argue that *gross* marginal revenue from investing demand deposits and CDs at the sample banks in 1963 was less than 1 percent, but that *gross* marginal revenue from investing other time and savings deposits was about 5 percent; for capital funds it is 16 percent. Since market rates on 3-month Treasury bills ranged from 2.9 to 3.5 percent in 1963, the gross marginal revenue estimates for demand deposits and CDs are not plausible. Where, furthermore, do banks find earning assets with marginal returns of 16 percent in which to invest their capital funds? And, if such opportunities exist, why do the banks not exploit them more fully with funds raised by selling deposits?

What went wrong is, I think, explainable. Their marginal cost and revenue estimates seem to reflect the fact that regressions were run on undeflated variables for banks of substantially different size. A common scale factor in the variables, therefore, produces an extraordinarily high R^2 for each equation—as high as .9996 in one case! This scale factor implies a high correlation between gross operating revenue and expenses; consequently, a regression of gross revenues on deposits and capital inputs tends to produce coefficients approximating marginal costs of funds raised, which may or may not equal gross marginal revenues. Similarly, a regression of expenses on earning assets generates estimates of marginal yields on earning assets, which may or may not equal marginal costs. Such estimates, moreover, evidently are especially sensitive to the degree of disaggregation of assets and libilities.[1]

Morrison and Selden argue persuasively for a thorough reexamination of existing regulations on bank asset purchases, capital requirements, and ceiling deposit rates. While they are surely correct in their principal contention—that the banking system suffers from excessive regulation—they are more confident than I am that pursuit of profit-maximization would provide adequate restraints on risk taking at banks. Bank failures of the past cannot all be ascribed to inappropriate monetary-fiscal policies permitting contractions in economic activity. The history of the 1920's suggests that the propensity to avoid risk may not provide adequate safeguards against widespread bank failures.

Though the empirical work is disappointing, this study is of generally high quality. Morrison and Selden do not attempt a definitive statement on the role that deposit structure should play in the employment of bank funds, or on the profit-maximizing rates for banks to pay on time deposits. But they approach these questions with the tools of economic analysis, and thereby have constructed some theoretical underpinnings on which further research can profitably build.

LYLE E. GRAMLEY

Board of Governors
of the Federal Reserve System

[1] See D. D. Hester and J. F. Zoellner, "The Relation Between Bank Portfolios and Earnings: An Econometric Analysis," an unpublished paper presented at the meetings of the Econometric Society, December 1964.

Monetary Equilibrium and Economic Development. By XENEPHON ZOLOTAS. Princeton: Princeton University Press, 1965. pp. xii + 223.

In the preface the author, the Governor of the Bank of Greece, promises ". . . to synthesize general economic principles with the practical experience of applying these principles to the 'real world' of a developing economy," (p. v). Of course, he does not fulfill this grand promise. What he does is to present a restatement of one of the current wisdoms about economic development, a sketch of Greek economic experience since 1950, and views of the problems and prospects of economic development.

The wise theme is that "In the longer run . . . the growth of real income and overall monetary equilibrium, defined to include both the domestic price level and the external sector, are mutually interdependent and both form an integral part of an adequate consistently sustained process of development" (p. 1). Although monetary equilibrium is nowhere precisely defined, it can be taken from the argument to mean the maintenance of exchange rate stability. Governor Zolotas quite clearly recognizes that some domestic price inflation might be unavoidable and monetary ease, to the extent

made possible by the exchanges, is an apparent aid to development.

Even though monetary equilibrium is a central concept in the volume, no serious analysis of how the monetary mechanism affects the development process, or how internal and external monetary equilibrium are interrelated, is attempted.

If, along with economic growth, exchange rate stability is a major policy objective, then the question naturally arises as to the cost of exchange rate stability. Governor Zolotas, apparently believing in the inherent compatability of his various goals, nowhere specifically addresses himself to this problem. But in a world made up of economies with different full employment growth rates, different income elasticities of demand for the various internationally traded goods and services, and different "Philips Curves" relating domestic price level changes to unemployment, there is no presumption that the set of exchange rates that is "correct" at one time will be "correct" at another. In order to maintain fixed exchange rates some flexibility has to be introduced into the system. All too often, in both developed and underdeveloped economies, it is employment that is foregone in order to achieve stability. Foregone employment not only reduces income below attainable levels, thus reducing imports, but it also constrains domestic wage and price increases, thus improving the "competitive" position of an economy.

Thus, the balance of payments is taken as both the key indicator and the key constraint upon the adequacy of a country's development effort. Some pressure on the balance of payments is desirable to make sure ". . . that the development effort is not falling short of the potential of the economy" (p. 15), but, on the other hand, "monetary pressures on the balance of payments are usually a sign that the economy seeks to operate beyond its means" (p. 21). Thus, mounting balance of payment pressures call for constraint, even though open or disguised unemployment may exist, for ". . . employment maximization does not always coincide with output and income maximization, as it largely does in mature economies" (p. 185).

"Employment maximization" is not what an economist means when he uses the phrase "full employment"; what he means is the utilization of idle resources to produce useful goods and services. Whenever open or disguised unemployment exists, there is a presumption that useful output can be produced, although what outputs can be produced may be constrained by the terms upon which complementary factors are available. Thus, after all suitable labor is utilized in "sophisticated" production functions, the remaining, perhaps unskilled, labor should be used in "naive" production functions. In fact, as Zolotas recognizes when he writes about emigration, work experience transforms labor suitable only to naive functions into labor suitable for sophisticated production functions. Thus, a policy that condones open or disguised unemployment is giving up something, and the only possible defense of such a policy is that there are offsetting gains.

The major gain from exchange rate stability is that it does seem to facilitate capital importation, including the repatriation of nationals' balances. There is one reason why the international banking community has a favorable view of fixed exchange rates. In a world where economic growth and development are the primary policy objectives, and institutions are introduced which substitute for employment- and output-sacrificing fixed exchange rates, an international monetary system is needed. Until such institutional changes occur, it is a question of fact, rather than a matter of principle, whether a particular country gains more from the facilitation of capital importation under fixed exchanges than it loses from the unemployment that may be needed in order to protect the exchanges.

Two additional, quite interrelated, themes of Governor Zolotas are the inadequacy of the human factor and the limited absorptive capacity of an underdeveloped economy. The inadequacy of the human factor as a barrier to full employment or economic development seems to be a favorite theme of central bankers and other economic policymakers, especially those wedded to fixed exchanges. Nowhere in this short book is it recognized that if tomorrow the right kind of labor force existed, the generation of sufficient demand to achieve full employment will, by itself, increase pressure on the balance of payments.

Currently, education is the panacea for unemployment and underemployment in both developed and underdeveloped econ-

omies. Without denying that investment in humans increases productive capacity, it is necessary to point out that productive capacity without demand does not generate income. In addition, for both developed and underdeveloped economies, the gestation period for an educated labor force is perhaps longer than the social fabric can tolerate either unemployment or stagnation. Thus, in both situations, the correct approach is to take the labor force as it is, and tailor labor demand to conform to the available supplies.

However, the generation of full employment in this manner will add to the pressures on the exchange rate—especially if the increased output is neither an export nor an import substitute.

In Greece, the private sector did not absorb all of the funds made available to it by the financial system. No analysis of the terms at which funds were available is presented. If the terms were not punitive, then the existence of such a liquidity trap indicates that the standard devices of expansionary government spending are needed. In a country with a very limited supply of trained and technical personnel, the emphasis has to be on those projects that can utilize the existing idle workers. Failure of the private sectors to respond fully to financial ease is a signal, in both a developed and an underdeveloped economy, for fiscal expansion.

Incidentally, Governor Zolotas recognizes that the shortage of skilled personnel, and the limited capacity of the private economy to absorb available financial resources, indicates that the public sector will have to initiate many projects that, in time, will be transformed into private operations. The choice between private and public enterprise in many development situations is a matter of convenience rather than of ideology.

One factor stands out in Greek economic experience since 1950, the rapid growth of invisible receipts—tourism, transport, and emigrants' remittances—in the balance of payments, (Tables 49 and 50, p. 130). In common with many others, Governor Zolotas does not seem to feel that specialization in invisibles is a substitute for industrialization. He emphasizes that ". . . a fundamental and even widening deficit in the balance of trade still remains the central problem of commercial policy" (p. 122). This deficit in the balance of trade has occurred while the balance of payments has been improving, but to Governor Zolotas a country that specializes in invisibles is apparently in a weaker position than one that specializes in visible exports.

Of course, one item in the invisibles is a sign of weakness: the growth of emigrants' remittances, which reflects the tight labor markets of the Common Market and the slack labor markets of Greece. However, as Greece is not a continental economy, but really of the size of a region in a country such as the United States, specialization on an invisible export, such as tourism, may be the best way to exploit favorable production possibilities and income elasticities. The inferiority of tourism to industrialization in the minds of policy-makers seems to be a result of not distinguishing the effect that the size of an economy has upon its potential for product diversification. Insomuch as Zolotas advocates using Central Bank powers to guide development according to a plan, the prejudice in favor of industrialization and diversification may be an explanation of the limited absorptive capacity he writes of.

Although Governor Zolotas in his title and theme emphasizes the ambiguous concept of monetary equilibrium, in much of the work he reports on developments in Greece and gives his insights on the problems faced by a developing country. Wherever his views as to the nature of, and benefits from, monetary equilibrium do not intrude, this is a useful and valuable book.

HYMAN P. MINSKY
Washington University,
St. Louis, Missouri

Economic Growth and External Debt. By DRAGOSLAV AVRAMOVIC, et al. Baltimore: The Johns Hopkins Press, 1964. pp. xii + 207. $6.00.

This book is a collection of essays by members of the staff of the International Bank for Reconstruction and Development on an important problem—the determinants and measurement of the ability of underdeveloped countries to service external debts. With debt service flows skyrocketing, and with the less developed countries clamoring for more aid and for adjustments in their debts, the book is extremely timely.

The study is short on conclusions, and long

on unanswered problems. This is not surprising, considering the topic. Perhaps most disheartening to practitioners is the conclusion that the authors have not "succeeded in identifying one or a few statistical indicators which would conclusively show that the limits of indebtedness at conventional terms have been reached. Rather, it has arrived at a negative conclusion that such indicators probably do not exist," (p. 94). This conclusion is not based on empirical tests of the success of various indicators in predicting default, but on an examination of each indicator to determine the factors upon which it focuses.

An important part of the book is a brief section which presents data on outstanding debt and debt service. Nowhere else can one find such figures. Another interesting section finds no automatic relationship between fluctuations in export earnings and income from direct investment, and suggests that this reflects a shift in the character of private foreign investment after World War II. Officials who frame foreign aid policy would be well-advised to give serious thought to the plea for nonproject assistance (p. 90) on the grounds that project assistance on conventional terms may lead to debt-servicing problems. Also important is the suggestion that there may be poor countries where the returns on capital are below those in the advanced countries. This is an extremely controversial point on which very little evidence has been gathered, yet it is of enormous importance in determining the size and form of international public assistance. Having announced a doubt, let us hope that the Bank staff will seek the facts.

In rejecting the conventional indicators of debt-service capacity, the study offers in their place the open economy Harrod-Domar model pioneered by Harry Johnson and Gerald Alter. Making not unreasonable assumptions for the parameters of the model, the authors provide an illustration of a country which successfully services its debt even though the ratio of service payments to export earnings rises to more than 50 percent; if correct, this is indeed good news for lenders. In employing the model, the authors make an interesting discovery: The model yields a critical rate of interest on external debt which, if exceeded by borrowers, implies certain default because debt service grows faster than output. Thus, the study gives birth to a new indicator of debt-service capacity. I fear it is a still-birth, as much as I admire the ingenuity of the parents.

The basic trouble lies in the Harrod-Domar model. (1) There is no marginal social product in it to set a limit to the amount of funds that may be advantageously borrowed and safely loaned. (2) The results are extremely sensitive to error in predicting the rate of growth and the capital-output ratio and also to error in measuring the initial savings rate. (3) The balance of payments has no life of its own because the trade balance shifts as a result of postulated changes in savings and investment. (4) Like the rejected conventional measures of debt-service capacity, such as the ratios of debt service to export earnings, to national savings, to revenue, and to compressible imports, the model puts the emphasis on ability to pay whereas willingness to pay would seem to be the more fundamental variable. After all, a country could export its entire output if it wanted to do so by pursuing the right combination of monetary, fiscal, and exchange rate policies. If a debtor finds that the cost of default in the form of losses of future aid exceeds the benefits in the form of relief from debt service, it will increase its ability to pay by shifting its key policies.

The emphasis on ability to pay reaches a peak in Avramovic's concluding essay where he tentatively suggests that the key condition for success in lending on hard terms is a high level of investment by the borrower which yields high returns. If returns are high, the plough-back of earnings will be high; if the plough-back is high, output will grow quickly; if output grows quickly, the balance of payments will tend to show structural strength. The last link in this chain is surely suspect. Certainly the theoretical literature does not assure this result, nor does the empirical evidence. My candidate for the key condition is the willingness of creditors (or private investors) to lend (invest) more in the future, so that the debtor will lose something if he defaults. In any event, the book is essential reading for anyone interested in the financial condition of underdeveloped countries.

WILSON E. SCHMIDT

The Johns Hopkins Bologna Center and The George Washington University

Commercial Paper. By CHARLES M. WEBER. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965. pp. vii + 120. $2.25.

Commercial Paper, the latest in the Foundation of Law in Business Society Series, deals exclusively with the laws applicable to the execution, transfer, and discharge of negotiable instruments.

When one recognizes that over 50 million checks are issued every business day, in an amount in excess of $13 billion, one may appreciate the need for loan officers with a general knowledge of the laws applicable to such instruments. *Commercial Paper* will provide bankers, lawyers, students, and laymen alike with an elementary authoritative source to which they may turn as an aid in resolving legal problems arising from the use of negotiable bills and notes in commerce.

The volume is divided into 13 chapters, with each chapter being separated into titled sections, all relating to Article 3 of the Uniform Commercial Code. Since the Code became law in Pennsylvania in 1952, it has subsequently been enacted into law in two-thirds of the states. Although the Commercial Code covers a broad range of commercial transactions, Article 3 of the Code is limited solely to negotiable instruments and replaces the Uniform Negotiable Instruments Act as to the body of laws governing the rights and liabilities of parties to such instruments. Professor Weber has not undertaken to consider and elaborate on each provision of Article 3. He has limited his consideration to those provisions which appear to be most difficult, and to those which may be of most importance to those dealing in commercial paper. Professor Weber has also given careful consideration to the provisions of Article 3 which changed, or clarified, the laws as they existed under the Uniform Negotiable Instruments Act.

The author has, with clarity, defined the technical terms used in Article 3. In addition, he has interspersed throughout his works concise examples of the application of the Code to problems which may be expected to occur with some regularity.

While *Commercial Paper* contains nothing which has not already been considered in other publications, it will prove to be of value as a brief and concise treatment of the laws applicable to negotiable paper under Article 3 of the Uniform Commercial Code.

WILLIAM O. MORRIS

College of Law
West Virginia University